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W13a

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STAFF RECOMMENDATION
REGULAR CALENDAR

Permit Number: **E-99-009**

Applicant: **Union Oil Company of California ("Unocal")**

Agent: Kim Tulledge, Cannon Associates

Project Location: Guadalupe Beach area of the Guadalupe oil field, San Luis Obispo County (Exhibit 1).

Project Description: Remove 2.29 miles of pipeline; temporarily widen "A" access road; relocate and modify electrical delivery system at the 5X site; excavate the 5X, A2A North, and A5A diluent plumes; install up to 100 post-construction monitoring wells; excavate the Leroy 3, A2A, A1/2X, TB4, D14 and B11 sumps; excavate the Leroy 6 and 5X oil layers; remove the 5X and B11 access roads and the A5A, Y4/A2A and A4 well pads; and, if needed for erosion protection, place up to 100 geobags along the southwest corner of the 5X sheetpile wall and 40 additional geobags along the riverbank at the southwest corner of the oil field.

This application also includes work carried out under emergency permits issued between 1994-1998 for (a) the 1994 partial excavation of the 5X plume; (b) installation of an 1,835-foot long 5X sheetpile wall on the beach; (c) removal of sumps along the southwest corner of the oil field; and (d) placement of 121 geobags along the bank of the Santa Maria River.

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EXECUTIVE SUMMARY

Project Description

Unocal is in the process of obtaining all necessary agency approvals to abandon the Guadalupe oil field and remediate petroleum hydrocarbon contamination in the oil field's soil and ground water. Unocal's overall proposed remediation and abandonment project is located in areas of both the County of San Luis Obispo's certified local coastal program ("LCP") permit jurisdiction and the Coastal Commission's retained coastal permit jurisdiction.

In this application, Unocal proposes to conduct the following major activities within the Coastal Commission's area of retained permit jurisdiction:

- ▷ Remove 2.29 miles of abandoned oil pipeline;
- ▷ Temporarily widen the "A" access road to allow for two-way traffic;
- ▷ Relocate and modify the electrical delivery system at the 5X site;
- ▷ Excavate the 5X, A2A North and A5A plumes;
- ▷ Install up to 100 post-construction monitoring wells;
- ▷ Excavate the Leroy 3, A2A, A1/2X, TB4, D14 and B11 sumps;
- ▷ Excavate the 5X and Leroy 6 "oil layers";
- ▷ Remove the 5X and B11 access roads;
- ▷ Remove the Y4/A2A and A4 well pads;
- ▷ If needed for erosion protection, place up to 100 geobags (*i.e.*, large sand bags 8 feet wide by 10 feet long by 3.5 feet high) along the southwest corner of the existing 5X sheetpile wall and 40 additional geobags along the riverbank at the southwest corner of the oil field; and
- ▷ When the 5X plume excavation is complete, remove the 5X sheetpile protection wall.

In addition to the new major activities listed above, Unocal, through this permit application, also seeks follow-up approval for emergency activities carried out under the authority of emergency permits issued by the Coastal Commission's Executive Director between 1994-1998. Those emergency activities include:

- ▷ The 1994 excavation of one-third of the 5X plume;
- ▷ Installation of a 1,835-foot long sheetpile wall on the beach adjacent to the 5X plume;
- ▷ Removal of sumps along the southwest corner of the oil field; and
- ▷ Placement of 121 geobags along the bank of the Santa Maria River.

These emergency permits are discussed in more detail in the Background Section of the Executive Summary.

Background

Soil and Ground Water Petroleum Hydrocarbon Contamination at the Oil Field

In January 1988, petroleum hydrocarbons were first discovered by surfers on the beach and in the ocean at the Guadalupe oil field. In January 1990, California Department of Fish and Game ("CDFG") staff noticed diluent surfacing in the sand in front of the area of the site known as the 5X well pad. At that time, the Central Coast Regional Water Quality Control Board ("RWQCB") ordered Unocal to investigate the source of the diluent spill. In February 1990, Unocal reported oil on the beach, shut down field operations, and discontinued use of diluent in its production operations.

In March 1990, Unocal installed a subsurface bentonite slurry wall in front of the 5X well area to stop diluent from reaching the ocean. The CDFG and the RWQCB also discovered diluent surfacing at a site called C-12 that is adjacent to the river estuary. In December 1991, Unocal installed a subsurface high density polyethylene ("HDPE") wall at the C-12 site to prevent migration of the diluent into the river.

Because diluent continued to surface on the beach, the RWQCB in 1993 ordered a site-wide investigation of petroleum-hydrocarbon contamination in the soil and ground water at the oil field. The CDFG investigation also led to the filing of criminal charges against Unocal and six of its employees. The defendants pleaded "no contest" to the criminal charges, were placed on three years probation, and fined $1.3 million.

Since 1993, Unocal has conducted site assessment activities throughout the oil field under the direction of the RWQCB. To date, over 90 diluent plumes and 150 sumps (*i.e.*, areas of concentrated contaminated wastes consisting of drilling muds, heavy metals, and a variety of petroleum products) have been identified (Exhibits 2 and 3). Between 8.5 and 20 million gallons of petroleum hydrocarbons are present in the soil and groundwater. As discussed in more detail below, the RWQCB has issued a Cleanup or Abatement Order based on these site assessment activities.

The contamination consists of both "separate-phase" (*i.e.*, free product) and "dissolved phase" diluent. Since diluent is lighter than water and has a low solubility, most of the diluent spilled to the shallow dune aquifer remains as separate-phase and "floats" on top of the water. Separate-phase diluent is also present in the soil column above the groundwater. Some of the diluent dissolves into the groundwater and moves downstream with the groundwater flow, generally from east to west (*i.e.*, dissolved-phase). This has resulted in groundwater contamination beneath

much of the site with a flux toward the ocean and Santa Maria River. In several areas the contaminated groundwater is entering surface water bodies. Of the diluent contaminated areas, there are four very large plumes: the 5X beach area, the Diluent Tank area, the Compressor Plant area and Tank Battery 9 (Exhibit 2). The thickness of diluent floating on the water table ranges from a sheen on top of the water to thicknesses of almost 6 feet.

Issuance of Emergency Permits

In the course of ongoing site characterization activities to determine the extent of the spill and development of a cleanup plan, as directed by the RWQCB, Unocal obtained the following emergency permits between 1994-1998:

Emergency Permit E-94-12-G

In August 1994, the Executive Director issued to Unocal emergency permit E-94-12 to excavate oil-contaminated sands in the 5X area and install a 965-foot long high-density polyethylene ("HDPE") wall on the beach to prevent further migration of diluent to the ocean (Exhibit 5).

Contaminated sand on the beach area was excavated to a depth of about 20 feet and removed from the beach to a treatment area. About 136,000 cubic yards of contaminated sand was treated using two thermal desorption units (located within the County's permit jurisdiction) to vaporize the diluent and incinerate the vapors. To remove the contaminated sand, Unocal constructed a large temporary sheetpile cofferdam on the beach. Unocal pumped extracted diluent to a temporary storage tank. About 250,000 gallons of diluent were removed from the excavation area. Thermally treated sand and stockpiled clean overburden (about 26,000 cubic yards) was used as backfill material on the beach.

This emergency work removed roughly one-third of the 5X plume. Concurrent with the beach excavation project, Unocal removed the bentonite wall and replaced it with a 965-foot long by 22-foot deep HDPE barrier wall to act as a barrier to prevent separate-phase diluent from migrating to the beach and ocean. Unocal installed extraction wells behind the HDPE wall to pump out diluent and contaminated groundwater accumulating behind the HDPE barrier. All temporary sheetpile was removed following HDPE wall installation.

Emergency Permit E-95-18-G

During the spring and summer of 1995, the Santa Maria River migrated northward up the beach and exposed a former sump associated with the abandoned Leroy 2 well located 800 feet south of the 5X HDPE wall (Exhibit 5). The sump released a sheen into the lagoon and river.

In November 1995, the California Department of Fish Game's Office of Spill Prevention and Response ("CDFG/OSPR") issued to Unocal a Cleanup or Abatement Order 95-111 to prevent the release of contaminants into surface waters. On November 30, 1995, the Commission's Executive Director issued emergency permit E-95-18-G to remove the sump. The sump footprint area was about 50 feet wide by 350 feet long and 2,840 cubic yards of contaminated material was removed. The river subsequently eroded this area where the sump was located.

Emergency Permit E-97-03-G

When the Santa Maria River migrated northward in spring of 1995 it threatened to erode the sand supporting the HDPE wall in the 5X area. In three phases between March 1995 and February 1997, Unocal installed a total of 1,835 lineal feet of temporary sheetpile wall on the beach directly in front of the HDPE wall that was installed in the summer of 1994 under emergency permit E-94-12 (Exhibit 5). One of the purposes of the 5X sheetpile protective wall is to prevent scouring and undercutting of the existing HDPE wall due to the northern migration of the Santa Maria River. The sheetpile wall and the HDPE wall remain in place to prevent a marine release of diluent from the remaining two-thirds of the 5X plume until the 5X plume is fully excavated.

Sheetpile installation involved excavating about 1500 cubic yards of vegetated overburden and 12,320 cubic yards of clean unvegetated overburden, transporting the sheetpile from staging areas with a forklift and driving the piles with a crane-mounted electric or hydraulic pile hammer. The individual piles were driven to a depth of approximately -29 feet mean sea level ("msl"). The top elevation of the sheet pile is +15 feet msl. The site was backfilled and re-contoured with the stockpiled sand to its pre-construction grade. In 1997, movement of the river along the sheetpile wall caused deep scour along the southwest corner. To create a unified structural element in the existing sheetpile wall, Unocal welded steel H-beam walers to the face of the pile on both sides of the southwest corner.

Unocal proposes to remove the sheetpile protection wall when hydrocarbon-affected soils behind (*i.e.*, eastward) the HDPE wall are removed. The 5X sheetpile protection wall will be in place for a total of about five years, until March 2001.

Emergency Permit E-98-09-G

During the 1998 winter storm season, the Santa Maria River rapidly eroded the northern bank of the river near its outlet to the Pacific Ocean, threatening to expose four areas that contained hydrocarbon-affected material. In March 1998, the Commission's Executive Director issued to Unocal emergency permit E-98-03-G (which was modified in May 1998 and superceded by E-98-09-G) to remove the contaminated material before the river reached the area.

In February 1998, Unocal commenced to (a) excavate the Leroy 3 sump, the 2X sump and the Leroy 2 access road sump (a total of 7,490 cubic yards of sump material) located at the southwest corner of the oil field; (b) excavate 26,400 cubic yards of petroleum hydrocarbon-affected soil from an area known as the A2A South plume; and (c) place 121 geobags along the upper edge of the river bank next to the southwest corner of the "A" road.

Cleanup or Abatement Order 98-38

After years of Unocal investigating the site to determine the composition and areal extent of contamination throughout the oil field, and the development of a cleanup plan (and subsequent preparation of an environmental impact report ("EIR")), the RWQCB in April 1998 issued Cleanup or Abatement Order ("CAO") 98-38 (as amended November 1998) requiring Unocal to abandon and remediate the oil field using various technologies (Exhibit 6).

The RWQCB decided to take a phased approach to site cleanup, proceeding first with cleanup of the 17 most critical plumes (those known to be introducing petroleum hydrocarbons into surface waters) while continuing with investigations into the total extent of site contamination. This phase of the cleanup project is referred to as "Phase 1" and is scheduled to take five years to complete. Phase 1 includes remediation of the large 5X plume located within the Commission's permit jurisdiction.

In the future, the RWQCB may issue additional Cleanup or Abatement Orders for remediation of the remaining 73 plumes and remaining sumps.

San Luis Obispo County's Action on Phase 1 Remediation and Abandonment Project

On September 22, 1998, the San Luis County Board of Supervisors approved coastal development permit/development plan D890558D for Phase 1 of the Guadalupe oil field remediation and abandonment project. The County's coastal permitting jurisdiction covers 14½ of the 17 Phase 1 plumes.

Appeal by Commissioners Wan and Areias

On October 19, 1998, Coastal Commissioners Wan and Areias filed an appeal (A3-98-91) of the County's decision. The appellants contended that the development as described in coastal development permit/development plan D890558D did not conform to the County's certified LCP policies concerning public access, recreation and habitat preservation for the following reasons:

- LCP Policy section 23.04.420 establishes criteria for the requirement of public access that the appellants believe were not met by the conditions of the County permit. Specifically, Conditions 171 and 172 required Unocal to extend existing offers to dedicate ("OTDs") of

lateral public access and conservation easements originally required in a 1980 Coastal Commission permit (CDP 409-24) "to at least 25 years after the issuance of a closure letter for the site by the RWQCB." It has been 19 years since the OTDs were originally required and, because of ongoing site contamination, the OTDs have not been accepted by a public agency or private non-profit. To be fully consistent with the public access components of the certified LCP and the Coastal Act, the appellants stated that Unocal must include an indemnification provision within the OTDs so that they can be expeditiously accepted.

- The County's conditions for habitat protection and restoration were in many cases vague, inconsistent and lack performance standards to ensure that environmentally sensitive habitats are protected and restored as required by LCP policies 23.07.160 and 23.07.170.

At the November 1998 Commission meeting, staff recommended that the coastal permit approved by the County raised Coastal Act and LCP concerns regarding its conformity with public access, recreation and habitat preservation policies. Commission staff therefore recommended that the appeal raised a "substantial issue." However, Commission staff qualified its recommendation with the view that the issues raised by the appeal could be resolved if the County revised its conditions of approval to address fully the LCP and Coastal Act issues that were of concern.

Commission staff proposed to work with the County and Unocal in developing draft changes to the County's conditions for consideration by the Commission at a future hearing. If changes were agreed upon, the County would consider the revised conditions and adopt a revised permit. If the Commission was confident that all Coastal Act and LCP deficiencies were addressed, then the appeal could be withdrawn and the County's revised permit would be in effect.

The Commission agreed to allow staff to work with the County in developing revised conditions of approval and continued the Substantial Issue appeal hearing until December 1998.

At the December 8, 1998, Commission hearing, the Commission reviewed (a) revised conditions of approval to be added to the County's coastal permit to address the LCP and Coastal Act issues raised in the appeal, and (b) a draft Indemnification Agreement to be executed by Unocal for the OTDs. The County staff proposed taking these changes to the County Board of Supervisors for adoption at its December 10, 1998 hearing. The Commission agreed to this approach and passed a resolution opening and continuing the Substantial Issue appeal hearing. The Commission also concurred in the withdrawal of the appeal by Commissioners Wan and Areias if the County Board of Supervisors adopted the suggested revised conditions of approval.

On December 10, 1998, the County Board of Supervisors adopted the proposed revised set of conditions of approval and approved a revised permit (Exhibit 8).

On January 13, 1999, Commissioners Wan and Areias withdrew their October 19, 1998 appeal of the County's September 22, 1998 action.

Discovery of PCBs Slows Implementation of Cleanup Project

RWQCB CAO 98-38 required Unocal to test diluent-contaminated soil at the oil field for non-diluent compounds (*i.e.,* Title 22 metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds.

In December 1998, Unocal submitted a report to the RWQCB that showed the presence of detectable levels of polychlorinated biphenyls ("PCBs") in diluent samples taken from several plume sites, including 5X. PCBs were also discovered in samples taken from the Diluent Tank area, Tank Battery 9, Tank Battery 8 and the Compressor Plant site. PCBs have not been identified outside of diluent-affected areas nor have they been detected in groundwater or in pond sediments.

After receipt of the initial results from the testing for non-diluent compounds, the USFWS and CDFG/OSPR were concerned that the Aroclor method used by Unocal for detecting PCBs was not sufficiently sensitive. Unocal agreed to retest all PCB-containing sites using congenor and homologue analyses, and incorporate that information in a site-wide ecological risk assessment.

Given the urgency of addressing remediation of those plume sites closest to the ocean and the Santa Maria River, Unocal proceeded first with site-specific testing and ecological risk assessments for the 5X beach and A2A North sites. (Re-testing of the rest of the PCB-containing sites, and the accompanying site-wide risk assessment, are expected by mid-2000).

Congenor and homologue PCB analyses of the additional soil samples taken from 5X and A2A supported the earlier (Aroclor) test results, indicating relatively low levels of non-diluent compounds, including PCBs, at these sites. These additional results, as well as results from several earlier studies on PCB risks to ecological receptors, were entered into an ecological risk assessment.

The ecological risk assessment for 5X and A2A North sites concluded that given the relatively low levels of PCBs and other non-diluent compounds, the remedial actions will not cause substantial incremental ecological risk to marine, aquatic or terrestrial plants or wildlife. (See Exhibit 9 for Executive Summary of 5X Beach and A2A North ecological risk assessment.) The RWQCB, CDFG/OSPR, the National Oceanic and Atmospheric Administration ("NOAA"), and the California Office of Environmental Health and Hazard Assessment (which served as a consultant to the RWQCB) reviewed the ecological risk assessment for the 5X and A2A North sites and concurred with its conclusions. Accordingly, the agencies directed Unocal to proceed with its plans to excavate the 5X and A2A North plumes, as originally required by CAO 98-38.

CDP Application E-99-009 Consistency with Coastal Act Policies

The purpose of the proposed remediation and cleanup project is to remove large quantities of petroleum hydrocarbons and other sump materials from the soil and groundwater of the Guadalupe oil field site, thereby eliminating future discharges of contaminated material to surface, ground and marine waters.

Although the intent of the proposed project is clearly consistent with the marine resource (Sections 30230 and 30231), environmentally sensitive habitat (Section 30240(a)), oil spill (Section 30232) and the public access and recreation policies (Sections 30210, 30211 and 30221) of the Coastal Act, executing the cleanup and abandonment project (*i.e.*, excavating large areas of environmentally sensitive habitat areas ("ESHA") that include some wetlands) will result in significant short-term, and perhaps long-term, unmitigable adverse impacts to ESHA and marine resources.

Table 1 summarizes project-related significant issues, potential impacts to coastal resources, and conditions[1] and mitigation measures Unocal will implement to avoid or reduce those impacts. Nevertheless, not all significant impacts can be avoided or mitigated.

Specifically, the project is inconsistent with the following Coastal Act policies:

- Section 30240(a) due to the significant unavoidable impacts to ESHAs and the sensitive plant and animal species they support;

- Section 30232 due to the inability to provide effective containment and cleanup equipment for accidental oil spills; and

- Section 30253(2) since the 5X sheetpile wall is contributing significantly to erosion of the beach.

However, Coastal Act § 30007.5 states in part:

> *The Legislature further finds and recognizes that conflicts may occur between one and more policies of the division. The Legislature further declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

[1] The recommended conditions of approval of this permit are based on the conditions that the Commission accepted during the appeal proceedings of the County's permit.

The Commission staff recommends that after applying the standard of Coastal Act § 30007.5, on balance, it is most protective of significant coastal resources to approve the project for the following reasons:

- The cleanup and abandonment project will cause significant, adverse, and perhaps unmitigable, impacts to marine resources and environmentally sensitive habitat areas ("ESHA") and the sensitive species they support. The project is thus inconsistent with Coastal Act §§ 30230, 30231 and 30240(a) which require that marine resources, ESHA, and species of special biological concern be maintained and protected.

  However, if the hydrocarbon contamination is left in place, future discharges of the contaminated soil and groundwater into surface waters and ESHAs could cause greater damage to marine resources, ESHAs and the sensitive species they support which is in clear conflict with Coastal Act §§ 30230, 30231 and 30240(a) standards that require healthy populations of marine resources, ESHAs and species of special biological significance to be maintained and protected. Therefore, eliminating the potential for the spillage of hydrocarbons by removing the contamination, as required by Coastal Act § 30232, will be more protective of coastal resources than leaving such contamination in place.

- In the event of a release of hydrocarbons into surface waters, there is currently no "effective" oil spill containment and cleanup equipment available to keep oil off the shoreline. The project is thus inconsistent with the second test of Coastal Act § 30232 which requires that an applicant provide effective cleanup equipment for accidental spills that do occur.

  However, leaving the contamination in place will increase the likelihood of a large release of hydrocarbons into surface waters and ESHA, including wetlands, especially since much of the contamination underlies the active beach area, the historical channel of the Santa Maria River, or is in or adjacent to wetland areas and is susceptible to erosion. Therefore, eliminating the potential for the spillage of hydrocarbons by removing the contamination, as required by the first test of Coastal Act § 30232, will be more protective of coastal resources than leaving such contamination in place.

- The Commission is not required pursuant to Coastal Act § 30235 to approve the installation on the beach of a sheetpile protection wall (approved under emergency permit E-97-03-G)) to prevent the release of diluent from the 5X plume because the 5X sheetpile wall does not serve coastal-dependent uses or protect existing structures or public beaches from erosion. The 5X sheetpile wall is also causing significant erosion to Guadalupe Beach and, therefore, is inconsistent with Coastal Act § 30253(a) which requires that new development neither create nor contribute significantly to erosion.

However, requiring removal of the 5X sheetpile wall now, before complete removal of the large 5X plume, will increase the likelihood of a large release of hydrocarbons into the ocean and Santa Maria River, which conflicts with the marine resource (Sections 30230 and 30231), ESHA (Section 30240(a)) oil spill (Section 30232), and public access and recreation policies (Sections 30210, 30211 and 30221) of the Coastal Act.

Staff Recommendation

For these reasons, the Commission staff recommends that pursuant to Coastal Act § 30007.5, on balance, it is more protective of coastal resources to resolve these conflicts by approving the proposed cleanup and abandonment project.

The Commission staff thus recommends that the Commission **approve** the proposed project, as strictly conditioned.

Table 1. Major Issue Summary: Potential Impacts, Proposed Conditions and Other Mitigation Measures

Significant Issue Area	Special Conditions and other Mitigation Measures
ESHA/Marine Resources	**Issue:** The Beach Projects will significantly disturb Environmentally Sensitive Habitat Areas ("ESHA") used by sensitive plant and animal species. **Mitigation Measures:** • **Special Condition 9** requires that prior to ground disturbance at each site, Unocal shall submit a site-specific Habitat Restoration, Revegetation and Monitoring Plan for Executive Director approval that includes biological surveys, disturbance limits, construction monitoring, dune stabilization measures, revegetation and wildlife introduction goals, and performance monitoring. • **Special Condition 19** requires Unocal to make every reasonable effort to avoid impacts to wetlands. Wherever ground-disturbing activities will occur, a preliminary wetland assessment by a qualified wetland delineator will be conducted in cooperation with the independent Onsite Environmental Coordinator ("OEC"). Unocal shall not commence activity at any wetland area until receiving written sign-off from the Executive Director. • **Special Condition 10** requires Unocal to limit disturbance time, mark sensitive species, develop an exclusion plan, and maintain a database of sensitive species and access restrictions. • **Special Condition 11** requires Unocal, in part, to develop sensitive plant salvage and propagation programs and sensitive wildlife capture and relocation programs. • **Special Condition 20** requires that if any project activities could result in unavoidable impacts to wetlands, Unocal shall prepare a Wetland Restoration and Mitigation Plan in the form of an amendment to this permit. The Plan shall include the ratio of created or restored wetlands to impacted wetlands, provide a range of microhabitats for sensitive plant species and provide a diluent-exposure monitoring plan. • **Special Condition 43** requires Unocal to re-offer to dedicate ("OTD") a shoreline habitat protection easement originally required in a 1980 coastal permit. Unocal must also execute an Indemnity Agreement to any entity approved by the Executive Director to accept the existing or new, replacement OTD. The Indemnity Agreement is to indemnify any party accepting the OTD from any liability arising out of past, present and future activities at the Guadalupe oil field. **Issue:** The Beach Projects will significantly disturb federally and state-listed species, including western snowy plover, California least tern and California red-legged frogs. **Mitigation Measures:** • **Special Condition 12** requires Unocal to schedule beach and foredune activities to avoid western snowy plover and California least tern habitat during their breeding seasons. • **Special Condition 13** requires that a qualified biologist with western snowy plover and California least tern experience monitor all remediation activities. • **Special Condition 14** requires that a qualified biologist monitor breeding and fledgling success of western snowy plover and California least tern populations during and after project activities.

Significant Issue Area	Special Conditions and other Mitigation Measures
	• **Special Condition 15** requires that at sites where California red-legged frog ("CRLF") habitat is present, Unocal implement pre-project and nighttime surveys. No project activities shall occur within 200 feet of suitable habitat, and CRLF captures and relocations will be by a monitor approved by USFWS. • **Special Condition 21** requires Unocal to limit the use of the "loop" road to minimize potential take of California red-legged frogs.
Water Quality	**Issue:** The Beach Projects could increase turbidity, or release sediment, suspended material, or settleable material into surface waters. **Mitigation Measures:** • **Special Condition 8** requires Unocal to develop soil stabilization and erosion control procedures for each excavation. • **Special Condition 24** requires Unocal to obtain an NPDES Construction Storm Water Activity Permit from the RWQCB that specifies best management practices ("BMPs") to reduce erosion. • **Special Condition 25** requires Unocal to monitor weekly surface water bodies for increased turbidity. • **Special Condition 26** requires that equipment and materials be stored inside bermed areas. • **Issue:** Failure of a sheetpile containment wall could release contaminated material into surface waters. **Mitigation Measures:** • **Special Condition 33** and **34** require Unocal to design the sheetpile walls to withstand appropriate local storm conditions.
Oil Spill Prevention and Response	**Issue:** The Beach Projects could cause a release of hydrocarbons into surface waters due to (a) failure of a sheetpile wall or a result of erosion due to migration of the Santa Maria River; (b) recovery and transport of diluent taken from excavation pits; (c) fueling activities; and (d) pipeline removal. **Mitigation Measures:** • **Special Condition 27** requires Unocal in part to submit a revised oil spill contingency plan that includes wildlife exclusion measures and wildlife response measures. • **Special Condition 28** requires Unocal, during the 5X excavation, to collect weekly samples of ocean water, interstitial water, and sediments at the point of ground water discharge at low tide on the sandy beach and analyze them for elevated hydrocarbons per the direction of CDFG/OSPR. If excavation activities are causing, or have a high likelihood to cause, marine discharges, all activities are to cease until Unocal and affected agencies identify how cleanup activities can proceed without additional discharges. • Unocal will maintain on-site spill containment and response equipment during all remediation and abandonment activities. • Unocal is a member of the Clean Seas oil spill cooperative.

Significant Issue Area	Special Conditions and other Mitigation Measures
Shoreline Processes	**Issue**: The 5X sheetpile wall is causing erosion of the beach. **Mitigation Measures:** • **Special Conditions 30** requires Unocal to visually monitor the wall daily and conduct quarterly elevation surveys of the wall, sand spit and riverbank. • **Special Condition 31** requires Unocal between September 30 and March 1 of each year to ensure that the wall is covered with sand, except in those locations where the Santa Maria River is immediately adjacent to the wall. • **Special Condition 41** requires Unocal to remove the 5X sheetpile wall at the earliest opportunity following the 5X excavation. **Issue**: Excavation activities may modify erosion and sedimentation patterns. **Mitigation Measures:** • **Special Condition 8** requires Unocal to develop soil stabilization and erosion control procedures for each excavation. • **Special Condition 24** requires Unocal to obtain an NPDES Construction Storm Water Activity Permit from the RWQCB that specifies best management practices ("BMPs") to reduce erosion. • **Special Condition 37** requires Unocal to submit a sediment grain size analysis of removed and replacement material. No filling of an excavated area is to occur until the grain-size compatibility between removed and replacement sediment is approved by the Executive Director. • **Special Conditions 36** and **37** require Unocal to compact and re-grade the excavated areas to approximate their pre-construction topographic contours and then add vegetated stockpiled soil. • **Special Condition 9** requires Unocal to revegetate and restore each disturbed area. **Issue:** A seismically generated tsunami could inundate open excavations, overtop containment walls, and submerge equipment within excavations. **Mitigation Measures:** • **Special Condition 35** in part requires Unocal in the event of a tsunami warning to move all personnel and equipment from the beach and to a safe elevation based on the warning.
Access and Recreation	**Issue:** The Beach Projects have and will reduce the quality of the recreational experience along the shoreline. **Mitigation Measures:** • **Special Condition 39** requires Unocal to provide fencing and other markings to warn the public of project hazards. Unocal will station a worker near points of public access to keep the public at a safe distance but still allow the public to traverse the beach. • **Special Condition 40** requires Unocal, at least one week before starting project activities, to provide notice to beach users of project activities. Signs in English and Spanish are to be posted at Rancho Guadalupe County Park and Oso Flaco Lake parking lots. The signs shall indicate that the beach will remain open during project activities.

Significant Issue Area	Special Conditions and other Mitigation Measures
	• **Special Conditions 43** and **44** require Unocal to re-offer to dedicate ("OTDs") shoreline easements providing for limited public access and habitat protection/open space originally required in a 1980 coastal permit. Unocal must also execute an Indemnity Agreement to any entity approved by the Executive Director to accept the existing or new, replacement OTDs. The Indemnity Agreement is to indemnify any party accepting the OTDs from any liability arising out of past, present and future activities at the Guadalupe oil field. • Unocal has provided approximately $1,069,000 to fund public access improvements and community outreach and education programs at Rancho Guadalupe County Park and the Nature Conservancy's Dune Center. • San Luis Obispo County, as part of its coastal permit, has required Unocal, if it succeeds in purchasing the oil field, to irrevocably offer to dedicate to a public agency or private non-profit association a site-wide open space, habitat protection, and managed public access easement. If Unocal does not succeed in acquiring the site, the County allows for other options including Unocal acquiring, or causing the acquisition of, a protective easement over a combination of foredune, backdune, and/or wetland habitats in the Guadalupe-Nipomo Dunes Complex that are the functional biological equivalent of the oil field in its natural state.
Visual	**Issue:** The Beach Projects have caused, and will cause, adverse visual impacts to beach users. **Mitigation Measures:** • **Special Condition 38** requires Unocal to schedule excavations located within the viewshed of Rancho Guadalupe County Park during winter, if feasible. • **Special Condition 41** requires Unocal to remove the 5X sheetpile wall following excavation of the 5X plume. • **Special Condition 42** requires Unocal to removal all geobags at the earliest opportunity following plume and sump excavations.

1.0 STAFF RECOMMENDATION

Approval with Conditions

The staff recommends conditional approval of Coastal Development Permit Application No.-E-99-009.

Motion:

I move that the Commission approve Coastal Development Permit Application No. E-99-009, subject to the conditions specified below.

The staff recommends a YES vote. To pass the motion, an affirmative vote of a majority of the Commissioners present is required. Approval of the motion will result in adoption of the following resolution and findings:

Resolution:

The Coastal Commission hereby **grants** permit E-99-009, subject to the conditions below, for the proposed development on the grounds that (1) as conditioned, the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and (2) there are no feasible alternatives or feasible mitigation measures available, other than those specified in this permit, which would substantially lessen any significant adverse impact which the activity may have on the environment.

2.0 STANDARD CONDITIONS See Appendix A.

3.0 SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

General Conditions

1. **Scope of Project Approval.** This permit authorizes those project activities and locations specifically described in Unocal's August 25, 1999 and September 10, 1999 coastal development permit application materials, as amended by Unocal's October 13, 1999 letter and supporting documents (including a revised project description dated October 8, 1999), except as otherwise modified by the conditions of this permit. Any modifications of or additions to the project, as described in the referenced documentation, including future removal of the "A" road, shall require an amendment to this permit.

2. **Condition Compliance.** Authority to conduct development activities under this permit is contingent upon full and continuing compliance with every condition of this permit. Failure

to comply fully with the requirements of any condition of this permit shall constitute grounds for a cease and desist order issued by either the Executive Director of the Coastal Commission (hereinafter "Executive Director") or the Coastal Commission (Coastal Act §§ 30809 and 30810).

3. **Funding Condition Compliance.** Unocal shall fund all necessary costs for condition compliance and the enforcement of this permit by the Coastal Commission. These costs will include staff salaries, equipment, travel, and associated operating costs incurred by the Coastal Commission to monitor compliance with and enforce the conditions of this permit. The Executive Director will determine the form and manner of payment by Unocal, consistent with the requirements of state law and which will ensure efficiency and reasonable costs to Unocal. The Executive Director will prepare a budget and work program specifying all needed funding. If Unocal and the Executive Director cannot agree on the budget or work program, the disagreement will be submitted to the Coastal Commission for resolution.

4. **Independent Monitor.** Prior to issuance of this permit, Unocal shall fund the hiring of an independent project monitor(s) to be selected by the Executive Director, County Department of Planning and Building, and the Central Coast Regional Water Quality Control Board ("RWQCB") after consultation with Unocal and other permitting agencies. The monitor(s) shall be under contract with the County, to act as project monitor(s) and condition compliance inspector(s) for the County of San Luis Obispo, the RWQCB, the Coastal Commission and other permitting agencies. The monitor(s) shall prepare a specific mitigation tracking monitoring plan and submit it to the Executive Director, the County Department of Planning and Building, the RWQCB, and other permitting agencies for review and approval.

5. **Indemnification**. In addition to any immunities provided for by law, in exercising this permit, Unocal agrees to hold harmless and indemnify the Coastal Commission, its officers, employees, agents, successors and assigns from any claims, demands, costs, expenses and liabilities for any damage to public or private properties or personal injury that may result directly or indirectly from the project.

6. **Liability for Costs and Attorney Fees.** Unocal shall reimburse the Coastal Commission in full for all costs and attorneys fees — including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorneys fees that the Coastal Commission may be required by a court to pay — that the Coastal Commission incurs in connection with the defense of any action brought against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit, the interpretation and/or enforcement of permit conditions, or any other matter related to this permit.

7. **Waiver.** In accepting this permit, Unocal agrees to waive any and all rights to challenge this permit under any legal theory.

Mitigation Measures

8. **Soil Stabilization and Erosion Control Procedures.** Prior to ground disturbance at each project site, Unocal shall submit to the Executive Director for review and approval Unocal's proposed procedures for soil stabilization and erosion control. The procedures shall be compatible with the Habitat Restoration, Revegetation, and Monitoring Plan objectives required by Special Condition 9. Any soil stabilizers identified for erosion control shall be compatible with native plant recruitment and establishment. Erosion control procedures shall include temporary soil stabilization methods to prevent the loss or movement of soil from clean or contaminated soil stockpiles. Unocal shall not commence any ground-disturbing activity at any site until receiving written sign-off on said procedures for that site from the Executive Director.

9. **Habitat Restoration, Revegetation and Monitoring Plan.** Prior to ground disturbance at each project site, Unocal shall submit and have approved by the Executive Director a site-specific **Habitat Restoration, Revegetation, and Monitoring Plan**. Unocal shall not commence any ground-disturbing activity at any site until receiving written sign-off on said plan for that site from the Executive Director. Each site-specific plan shall include, but not necessarily be limited to, the following elements:

   a. Prior to any site characterization, remediation, abandonment, infrastructure installation, or infrastructure removal activities, Unocal shall complete a pre-disturbance biological survey. The survey shall identify all species occupying or using the site, estimate the abundance (density or percentage ground cover), size or age structure, and condition of resident species, and the intensity of use (*e.g.*, time spent foraging or loafing) of non-resident species. Wildlife surveys must be conducted within 24 months of the disturbance and must include the seasons during which disturbances will occur. Vegetative surveys must be conducted within 6 months of the disturbance. Surveys of sensitive species must be conducted within 90 days of the disturbance. Sensitive species are defined as: (a) species which are listed by state or federal agencies as threatened or endangered or which are designated as candidates for such listing; (b) California species of special concern; (c) fully protected or "special animal" species in California; (d) plants considered rare, endangered, or of limited distribution by the California Native Plant Society; and (e) other species which were not recorded on the oil field prior to January 1, 1999 and for which there is substantial scientific evidence of rarity or endangerment. Individuals and colonies shall be mapped and clearly marked, their condition shall be determined and numbers of individuals or percentage of ground coverage or other appropriate measure of abundance shall be determined and recorded. Ground level photographs shall be taken within 30 days of the disturbance and a high resolution, vertical ortho rectified aerial photograph at a scale of 1:6000 or less will be taken within 3 months before the disturbance.

   b. Where delineated wetlands are present, prior to any project activities, the local hydrology and the soil profile to the depth of the expected excavation will be analyzed and described by appropriate specialists approved by the Executive Director in

consultation with the County Department of Planning and Building. The parameters to be assessed shall include depth, composition, and texture of wetland soils, and a description of any relatively impervious confining layers. Representative soil borings will be preserved and retained by Unocal until habitat restoration and revegetation has been successfully completed, unless otherwise approved by the Executive Director. The purpose of this condition is to provide the information necessary for physical restoration appropriate to the re-creation of self-sustaining wetland habitat similar to that which existed prior to excavation.

c. A map shall be prepared with a polygon representing the geographic limits of disturbance and the geographic boundary of restoration and revegetation activities. The disturbance boundary will be physically delineated in the field. The boundary of restoration activities may be larger.

d. Prior remediation, abandonment, infrastructure removal activities and other known disturbances (including grazing) shall be summarized.

e. Each site-specific plan shall incorporate construction monitoring measures that include, but are not necessarily be limited to, the following elements:

   i. Pre-construction topographic survey information.

   ii. Specifications for soil compaction, for grading and contouring, for quantity and physical/chemical characteristics of replacement soils and fill, for top soil maintenance or replacement, for erosion control procedures, and other development activities. Upon completion of an excavation, temporary sheetpile shall be removed and ground surface shall be restored to approximate its pre-construction topographic profile. The area surveyed must include the entire limits of work including access corridors, staging areas, overburden storage areas and topsoil storage areas.

   iii. Protocols to determine quantitatively, following physical restoration and grading, whether the physical habitat has been built-to-plan. The post-construction monitoring report must be approved by the Executive Director prior to revegetation efforts within the area physically restored. This does not preclude early restoration and revegetation activities in portions of the site not subject to construction activities.

f. Each site-specific plan shall incorporate dune stabilization measures which must include, but not necessarily be limited to: (a) monthly monitoring for erosion during the annual rainy season (including the period November through March), until biological performance criteria have been met; (b) remedial measures in the event of erosion; and (c) ongoing dune stabilization measures which may include appropriate physical measures (*e.g.*, installation of jute netting) and revegetation activities.

g. Each site-specific plan shall include a description of the habitat and revegetation goals in terms of abundance (*e.g.*, density or ground cover), height or other growth characteristics, recruitment and survival, and general dispersion of particular plant species and the population characteristics (*e.g.*, density, age or size structure) and habitat use by wildlife species. The Plan will include technical details of collecting seeds and other propagules, propagation, planting, routine monitoring and maintenance (including irrigation), wildlife introductions, and a time schedule. Specific facilities and staff will be identified.

h. Each site-specific plan shall include specific erosion control and ecological performance criteria which relate logically to the local restoration and revegetation goals. Where there is sufficient information to provide a strong scientific rationale, the performance criteria shall be absolute (*e.g.*, a specified percentage ground cover or a specified average height within a specified time for a species). Where absolute performance criteria cannot reasonably be formulated, clear relative performance criteria will be specified. Relative criteria are those that require a comparison of the restoration site with reference sites. Reference sites may be located on the oil field property or in other areas of the Guadalupe–Nipomo Dunes complex. In the case of relative performance criteria, the rationale for the selection of reference sites, the comparison procedure, and the basis for judging differences to be significant will be specified. If the comparison requires a statistical test, the test will be described, including the desired magnitude of difference to be detected, the desired statistical power of the test, and the alpha level at which the test will be conducted. The design of the sampling program shall relate logically to the performance criteria and chosen methods of comparison. The sampling program shall be described in sufficient detail to enable an independent scientist to duplicate it. Frequency of monitoring and sampling shall be specified for each parameter to be monitored. Sample sizes shall be specified and their rationale explained. Using the desired statistical power and an estimate of the appropriate sampling variability, the necessary sample size will be estimated for various alpha levels, including 0.05 and 0.10.

i. Unocal shall fund an independent biological performance monitor to be selected by the Executive Director in consultation with the County Department of Planning and Building, after consultation with Unocal and other agencies, to conduct performance monitoring. The performance monitors will coordinate their activities with Unocal's Management and Coordination Team and with the revegetation contractors. The performance monitors and revegetation contractors are encouraged to cooperate in field sampling, but the performance monitors shall direct the performance monitoring activities. Performance monitoring shall commence one year following the completion of habitat restoration and revegetation and continue until performance standards have been met for two consecutive years after the end of maintenance or bioremediation activities (*e.g.*, watering, replanting etc.) or for 10 years, whichever is shorter. If performance standards are not met in ten years, or if prior to that time Unocal concludes that restoration and revegetation will not meet performance standards, within

180 days Unocal shall apply to the Coastal Commission for an amendment to this coastal development permit which will include alternative mitigation.

10. **Avoidance/Minimization Measures.** Unocal shall take all feasible steps to avoid or minimize environmental impacts including, but not necessarily limited to, the following actions:

    a. The duration of time each site is disturbed and the total area of disturbance shall be minimized to the extent feasible.

    b. Unocal shall maintain a current database of state or federally listed rare, threatened or endangered species and other sensitive species present in the oil field and seasonal or year round access restrictions or closures required for sensitive species protection. Unocal shall keep closure information posted in the field office and contractor trailers and notify all personnel of closed areas and penalties that Unocal will exact from its contractors and employees for non-compliance.

    c. In cooperation with the independent Onsite Environmental Coordinator in the field, Unocal shall clearly mark any potentially impacted locations of sensitive species in the oil field to exclude vehicles or pedestrians (*e.g.*, with traffic cones, t-bar and caution/DO NOT ENTER tape, t-bar and orange construction fence).

    d. Unocal shall confine all off-road vehicular use to designated construction areas and access corridors. These shall be surveyed by qualified biologists in cooperation with the independent Onsite Environmental Coordinator and routed to avoid impacts to sensitive plant and wildlife species and minimize impacts on native vegetation and soils. The corridors shall be clearly designated in the field using durable and conspicuous markers that can be removed before they degrade or that will degrade completely into environmentally harmless materials. Locations shall also be marked on maps. All personnel operating vehicles capable of off-pavement travel shall be informed of the restrictions on off-pavement travel and made responsible for adhering to them. Unocal and its contractors shall not commence any off-road vehicular travel at any project site until receiving written sign-off on said designations for that site from the Executive Director.

    e. Unocal shall minimize ATV use and confine it to designated corridors with restrictions on top speed and noise generation. Access to monitoring wells shall be by the route employed to install them unless an ecologically preferable route is identified and approved by the independent Onsite Environmental Coordinator. Access routes to sites not accessible by designated corridors shall first be surveyed by a qualified biologist in cooperation with the independent Onsite Environmental Coordinator. An up-to-date sign-in log shall be maintained by Unocal and its contractors of all ATV use (including names of operators and passengers, routes traveled, dates and times in and out, and purpose). Access corridors shall be periodically surveyed, at a frequency determined by

Unocal and the independent Onsite Environmental Coordinator in consultation with the appropriate resource agencies, by a qualified biologist in cooperation with the independent Onsite Environmental Coordinator to monitor access corridor condition, including exotic species establishment, and presence of sensitive species (*e.g.*, new establishment of beach spectacle pod). Eradication efforts shall be implemented if the corridor is facilitating spread of invasive exotic species into areas where they are not already well-established.

f. Prior to ground disturbance at each excavation site, an exclusion plan shall be prepared by Unocal in cooperation with the independent Onsite Environmental Coordinator and approved by the Executive Director. The plan shall identify and map all exclusion zones that shall not be disturbed or disrupted by any element of the proposed projects. Exclusion zones shall include sensitive habitats such as wetlands, riparian vegetation, important terrestrial habitat and other biological resources. Unocal shall not commence any ground-disturbing activity at any site until receiving written sign-off on said plan for that site from the Executive Director.

g. Unocal shall restrict construction activities and equipment to existing roads, pads or otherwise disturbed areas as much as possible.

h. Where access to sites or pipeline abandonment must be through native habitats, a qualified biologist in cooperation with the independent Onsite Environmental Coordinator shall determine the most suitable and least environmentally damaging access route to the site. This access route shall be clearly marked and will be considered part of the construction zone. Unocal shall not enter any native habitats until receiving written sign-off on said access route for that habitat from the Executive Director.

i. Limits of the construction zone shall be clearly marked and delineated by Unocal in the field and approved by the independent Onsite Environmental Coordinator prior to issuance of grading permit for each excavation project. No unauthorized personnel or equipment shall be allowed in native habitats outside the construction limits.

j. Unocal shall clearly mark biologically sensitive areas on grading plans and on site (prior to commencement of activity), and ensure that they are avoided by personnel and equipment.

k. At oil spill remediation sites, oil field abandonment activities shall be completed prior to or concurrent with remediation, avoiding any redisturbance following the completion of remediation. Following on-site remediation activities, foreign material (*e.g.*, rock fragments, asphalt, abandoned equipment and debris) shall be removed from surface soils, except with the approval of the Executive Director. Original topography shall be restored to the extent possible, and stabilized if necessary by physical means such as jute netting.

l. For sites where ongoing access is required (such as for monitoring or maintenance), a qualified biologist in cooperation with the independent Onsite Environmental Coordinator shall determine the most suitable access route. Access routes shall be clearly marked and off-road travel shall be confined to designated routes. Periodic surveys of the access routes, at a frequency determined by Unocal and the independent Onsite Environmental Coordinator in consultation with the appropriate resource agencies, shall be conducted by a qualified biologist in cooperation with the independent Onsite Environmental Coordinator to determine the presence of sensitive species and need for remedial action for environmental impacts, including weed establishment on the disturbed corridor. If the independent Onsite Environmental Coordinator determines that a more suitable route is present, then the new route shall be clearly marked and the old route shall be restored to preexisting conditions and clearly marked to preclude entry. Once the access routes are no longer required, they shall be included in a site specific Habitat Restoration, Revegetation and Monitoring Plan described in Special Condition 9.

m. Lighting shall be shielded and directed away from the beach or sensitive wildlife habitat, to the extent feasible, unless otherwise approved by the independent Onsite Environmental Coordinator.

n. Traffic shall be confined to existing roads and defined work areas. No equipment, vehicles, or personnel shall enter any designated exclusion area or area designated by the independent Onsite Environmental Coordinator as sensitive species habitat. Sensitive species habitat may be traversed only on foot with the permission of the independent Onsite Environmental Coordinator

o. Prior to the startup of project activities, and as needed for new personnel, a qualified biologist approved by the Executive Director in consultation with the County Department of Planning and Building and other appropriate resource agencies shall conduct a brief training session for all personnel working on the oil field. Training shall include a brief description of all sensitive species potentially occurring on or near sites, details on each species habitat, the protective measures to be implemented for each species, a description of the role of the independent Onsite Environmental Coordinator and biological monitors, and the responsibilities of those on site to protect resources. A video may be produced to satisfy this requirement.

p. Unocal shall enable an independent Onsite Environmental Coordinator to be present at the oil field at anytime, day or night, that ground-disturbing activities associated with site characterization, oil spill remediation, oil field abandonment, infrastructure installation, or infrastructure removal activities are taking place. Unocal shall notify the independent Onsite Environmental Coordinator of any such activities in a timely fashion. If sensitive species could potentially be affected, at the discretion of the independent Onsite Environmental Coordinator a biological monitor under the independent Onsite Environmental Coordinator's direction will be physically present at the site when project activities are occurring and shall monitor the construction zone

and suitable sensitive species habitat within the project vicinity. The monitor shall be notified immediately if any sensitive species is observed inside the construction work area or within 200 feet of the zone. Only the biological monitor, or other qualified biologists approved by the Executive Director shall handle or approach any sensitive species, except where lack of action would endanger the health of an individual animal. If construction operations threaten to injure individuals of a sensitive species, the biological monitor shall request the construction personnel to alter their activities so as to avoid such injury and shall immediately notify a designated Unocal representative and the independent Onsite Environmental Coordinator who will notify the Executive Director and the County Department of Planning and Building.

11. **Sensitive Species.** If sensitive species as defined by Special Condition 9a are present at any project site, Unocal will implement the following requirements:

    a. Adjust or limit construction areas and access routes and construction timing to avoid impact to individuals or colonies of sensitive species.

    b. Where impacts to sensitive plant species are unavoidable, develop and implement a salvage, propagation, and replanting program that will utilize both seed and salvaged (excavated) plants which constitute an ample and representative sample of each colony of the species that would be impacted. The program plan shall include measures to perpetuate to the greatest extent possible the genetic lines represented on the impacted sites by obtaining an adequate sample prior to construction, propagating them and using them in the restoration of that site. The salvage, propagation, and replanting program shall be approved by the Executive Director in consultation with the County Department of Planning and Building and other appropriate resource agencies before any activities that could potentially impact sensitive plant species or a separate mitigation plan that compensates for direct impacts (including mortality, decreased fitness (*e.g.*, growth or breeding success) and loss of habitat) and temporal losses shall be developed in consultation with, and be approved by, the Executive Director and other appropriate resource agencies within one year following habitat restoration at the site.

    c. Where impacts to sensitive animal species or their habitats are unavoidable, Unocal shall develop and implement a capture and relocation program. Prior to ground disturbance, the site and the surrounding area for a minimum distance of 200 feet beyond the disturbance polygon will be searched and individuals captured using techniques appropriate to the species of concern (*e.g.*, visual examination, baiting, night lighting, netting, trapping) and approved by the appropriate resource agencies. Appropriate barriers to movement will be erected to minimize movement back into the construction area and the area will be periodically searched and immigrants removed. All captured individuals will be released as soon as possible into suitable habitat that has previously been identified or will be maintained in captivity and released where captured after restoration and revegetation is completed. The size or age-class, location of capture, and the relocation site shall be recorded for each individual relocated from

the site. The capture and relocation program shall be developed in consultation with, and be approved by, the Executive Director and other appropriate resource agencies. A separate mitigation plan that compensates for direct impacts (including mortality, decreased fitness (*e.g.*, growth or breeding success) and loss of habitat) and temporal losses shall be developed in consultation with, and be approved by, the Executive Director and other appropriate resource agencies, within one year following habitat restoration at the site. The mitigation plan shall include provisions for: (a) yearly surveys for sensitive species during the suitable season to determine relative population sizes, evidence of breeding, and distribution throughout the oil field; (b) reassessment of the suitability and effectiveness of proposed mitigation; and, (c) if needed, implementation of additional mitigation.

12. **Snowy Plover and Least Tern Breeding Season Avoidance.** Project activities on or near the beach and foredunes shall be scheduled to avoid western snowy plover and California least tern habitat during their breeding seasons (from March 1 to September 15) to the maximum extent feasible as determined by the USFWS.

13. **Snowy Plover and Least Tern Non-Disturbance Measures.** Under the direction of the independent Onsite Environmental Coordinator in cooperation with Unocal, an independent qualified biologist with western snowy plover and California least tern experience approved by the Executive Director shall visit the site regularly as determined by the USFWS throughout the construction phase and immediately prior to site characterization, oil spill remediation, oil field abandonment, infrastructure installation, or infrastructure removal activities to ensure that all practicable measures are being employed to avoid incidental disturbance of sensitive species and sensitive species habitats.

14. **Snowy Plover and Least Tern Monitoring.** Western snowy plover and California least tern populations shall be monitored by a qualified biologist approved by the Executive Director to determine breeding and fledgling success during project activities and for a duration determined by the USFWS and CDFG after project activities have been completed.

15. **California Red-Legged Frog.** At sites where California red-legged frog habitat is present, the following requirements will be implemented unless otherwise directed by the USFWS:

    a. Pre-project surveys of California red-legged frogs shall be conducted by an independent qualified biologist approved by the Executive Director under the direction of the independent Onsite Environmental Coordinator and in cooperation with Unocal. The survey shall be conducted according to USFWS guidelines, throughout the proposed area of disturbance and within suitable habitat up to 500 feet away from the remediation area.

    b. No site characterization, oil spill remediation, oil field abandonment, infrastructure installation or infrastructure removal activities shall occur within 200 feet of suitable

California red-legged frog breeding habitat November through March or as otherwise determined by USFWS

c. Prior to commencing any project activities, Unocal shall fence project sites within 500 feet of California red-legged frog habitat to exclude California red-legged frogs from the disturbance zone. Captured red-legged frogs shall be relocated to predetermined suitable habitat outside of the construction zone. All non-native predators to the red-legged frog, including crayfish and bullfrogs captured during the relocation efforts, shall be destroyed.

d. For the duration of construction activities in the vicinity of California red-legged frog habitat, nighttime surveys for California red-legged frogs shall be conducted by Unocal at least twice per week or as directed by USFWS to ensure that red-legged frogs are not entering the work area. If a red-legged frog is found in the work area, only a biological monitor approved by the USFWS may relocate the frog.

16. **Salvage Topsoil.** For areas where vegetation and soil are to be removed, Unocal shall salvage and replace topsoil that is reasonably weed-free. In consultation with the resource agencies and revegetation specialists, Unocal shall develop a plan for removing the topsoil that will maximize, to the extent feasible, salvage of the seed bank. This plan must be approved by the Executive Director. Unocal shall not commence any soil or vegetation removal at any site until receiving written sign-off on said plan for that site from the Executive Director.

17. **Stockpiling Topsoil and Overburden.** Unocal shall stockpile clean top soil and clean overburden soil in previously disturbed areas, altered areas, or future excavation areas or in unvegetated areas to minimize impacts to erosion and sedimentation patterns. Proposed clean soil and clean overburden soil storage areas shall be prepared in a similar manner as the excavated area. This preparation shall include perimeter staking, brush raking, topsoil removal and stockpiling, and protective measures to prevent erosion of the topsoil stockpile. All proposed stockpile areas and erosion control measures shall be reviewed and approved by the Executive Director. Unocal shall not commence any stockpiling activity at any site until receiving written sign-off on said areas and measures for that site from the Executive Director.

18. **Aerial Photographs.** Unocal shall provide for a post-construction high resolution, vertical ortho rectified aerial photograph at a scale of 1:6000 or less to be taken of each site 3 years following the completion of revegetation. A report including the pre-construction and post-construction aerial photographs and a map with overlays containing vegetation polygons from the two aerial photographs shall be submitted to the Executive Director within 90 days of the date the post-construction photograph is taken.

19. **Wetland Delineation.** Every reasonable effort shall be made to avoid impacts to wetlands. Wherever ground-disturbing activities will occur, a preliminary wetland assessment shall

be made by a qualified wetland delineator in cooperation with the independent Onsite Environmental Coordinator. If, in the opinion of the independent Onsite Environmental Coordinator, there is evidence of frequent soil inundation or saturation, hydric soils, or a prevalence of hydrophytic vegetation, a formal wetland delineation shall be conducted by a qualified delineator approved by the Executive Director in consultation with other resource agencies. The delineation shall be conducted in cooperation with the independent Onsite Environmental Coordinator and will be based on the criteria accepted by the California Department of Fish and Game and the Coastal Commission. If wetlands are present in areas of potential impact, their boundaries shall be accurately determined and mapped. Unocal shall submit a report to the Executive Director and other appropriate agencies prior to the initiation of site characterization, oil spill remediation, oil field abandonment, infrastructure installation, or infrastructure removal activities. Unocal shall not commence any ground-disturbing activity at any area of potential impact until receiving written sign-off on said report for that area from the Executive Director

20. **Wetland Restoration and Mitigation Plan.** If any project activities could result in unavoidable impacts to wetlands, Unocal shall submit a **Wetland Restoration and Mitigation Plan** in the form of an amendment to this permit. The plan must be approved by the Coastal Commission prior to initiation of project activities that could result in unavoidable impacts to wetlands. The Wetland Restoration and Mitigation Plan shall include, but not necessarily be limited to, the following elements:

    a. The ratio of the area of created or restored wetlands to the area of impacted wetlands shall be 4 to 1, unless otherwise required by resource agencies.

    b. To promote the reestablishment of desired wetland and transition habitats where these habitats have been excavated, post-treatment ground elevations shall be established so as to provide saturated surface soil conditions at the lowest points, surrounded by zones of gradual transition (averaging less than 5 percent slope) to provide a range of microhabitats that can accommodate the requirements of sensitive plant species. Final elevations shall be determined based on monitoring records for the site and the observation of groundwater depths during remediation.

    c. A plan for monitoring dissolved-phase diluent to ensure detection of exposures approaching potential damage thresholds as determined by the USFWS and CDFG. Monitoring reports shall be submitted to the Executive Director, the County Department of Planning and Building, USFWS and CDFG quarterly or whenever thresholds are exceeded.

    d. The restored or created wetland and adjacent upland and transitional habitats within 100 feet, or a greater distance if required by appropriate resource agencies, shall be included in the Habitat Restoration, Revegetation, and Monitoring Plan described in Special Condition 9.

21. **Loop Road Limitations.** During November through March of each year, Unocal shall limit use of the "loop" road to foot traffic and emergency vehicles only, unless otherwise authorized by USFWS. During March through September of each year, Unocal shall exclude all foot and vehicle traffic on the loop road, except for emergency vehicles, unless otherwise authorized by USFWS. Unocal shall enforce a 5-mph speed limit for all traffic on the loop road.

22. **Past Project Restoration.** For each area disturbed as a result of remediation activities authorized by emergency permits E-94-12-G, E-95-18-G, E-97-03-G and E-98-09-G, Unocal shall within 60 days of issuance of this permit submit to the Executive Director for review and approval a site-specific **Habitat Restoration, Revegetation and Monitoring Plan** as described in Special Condition 9 of this permit. These site-specific plans may exclude those pre-disturbance requirements that cannot be complied with because of the emergency nature of the remediation activities. Available pre-disturbance information collected at the sites of disturbance or at nearby sites in similar habitat shall be included in each plan. Unocal shall include a restoration schedule in each plan.

23. **Interim Site Stabilization Plan.** Within 30 days of issuance of this permit, Unocal shall submit to the Executive Director for review and approval an **Interim Site Stabilization Plan** for all foredune and dune area adversely affected by remediation activities carried out under the authority of emergency permits E-94-12-G, E-95-18-G, E-97-03-G and E-98-09-G. The plan shall include: (a) methods for substrate stabilization and erosion control; (b) methods for controlling the influx and establishment of undesirable plant species; and (c) a monitoring program. The Interim Site Stabilization Plan shall be implemented until a site-specific Habitat Restoration, Revegetation and Monitoring Plan as required by Special Condition 9 of this permit is approved by the Executive Director and implemented by Unocal.

24. **NPDES Construction Storm Water Activity Permit.** Prior to issuance of this permit, Unocal shall submit to the Executive Director a NPDES Construction Storm Water Activity Permit approved by the RWQCB. The Pollution Prevention Plan shall specify Best Management Practices ("BMPs") to reduce erosion of disturbed soils within and adjacent to construction and staging areas. These BMPs may include but are not limited to: use of hay bales, silt fences, sediment traps, coffer dams, and containment berms.

25. **Water Turbidity Monitoring.** For project activities that have the potential of increasing water turbidity, Unocal shall monitor weekly the Santa Maria River and surface water bodies for turbidity during construction activities to determine whether construction is increasing turbidity. Prior to ground disturbance, turbidity shall be monitored at the proposed construction sites and, in the case of activities near the river, at a nearby control site in the river upstream from the project. These sites will also be monitored during construction activities. If there is a visible turbidity plume emanating from the construction site or if there is a measured relative increase in turbidity levels near the construction site of 20 percent or more, construction activities shall be halted until additional remedial actions are approved by the Executive Director. Similar monitoring shall be conducted at all

locations where construction activities are planned within 100 feet of surface water resources.

26. **Equipment Storage.** Equipment and materials, particularly materials that can cause turbidity and sedimentation, shall be stored inside bermed areas where surface runoff can be controlled and kept away from surface water.

27. **Revised Oil Spill Contingency Plan.** Prior to issuance of this permit, Unocal shall submit to the Executive Director for review and approval a revised Oil Spill Contingency Plan that includes the following components:

    a. A Wildlife Exclusion Plan;

    b. A Wildlife Response Plan; and

    c. An updated list of on-site Hazwoper trained personnel.

    Unocal shall not commence clean-up activity at any site until receiving written sign-off of said plan from the Executive Director.

28. **Water Quality Samples.** During the 5X West and East excavations, Unocal shall, with oversight by the independent Onsite Environmental Coordinator, collect weekly samples of ocean water, interstitial water, and sediments at the point of ground water discharge at low tide on the sandy beach and analyze them for elevated hydrocarbon concentrations per the direction of the California Department of Fish and Game's Office of Spill Prevention and Response ("CDFG/OSPR"). The results shall be provided to CDFG/OSPR within 24 hours of sample collection. If CDFG/OSPR determines that 5X excavation activities are causing, or have a high likelihood to cause, marine discharges of hydrocarbons, all activities shall cease until the Executive Director and other affected agencies in consultation with Unocal determine how the excavation activities can be conducted without causing additional discharges. Unocal shall not re-commence any activity at any site until receiving written authorization from the Executive Director.

29. **Spill Samples**. If a release into the Santa Maria River or ocean occurs due to project activities, Unocal shall with oversight by the independent Onsite Environmental Coordinator collect samples as soon as practicable such that quantification of the spill volume can be estimated and potential impacts to biota and water quality can be evaluated. Unocal shall provide split samples to the CDFG/OSPR and the RWQCB as requested.

30. **5X Sheetpile Wall Monitoring.** During the life of the 5X sheetpile wall, Unocal shall implement the *Unocal Guadalupe Sheetpile Wall Monitoring Program (*dated August 20, 1998*)*.

31. **5X Sheetpile Wall Sand Coverage.** Between September 30 and March 1 of each year, Unocal shall ensure that the 5X sheetpile wall is covered with sand, except in those locations where the Santa Maria River is immediately adjacent to the 5X sheetpile wall.

32. **Sheetpile Location.** Prior to sheetpile installation at each excavation site, the Executive Director shall review and approve sheetpile locations, and provide a written sign-off, to ensure that site disturbance is minimized. The temporary sheetpile shall be removed immediately upon completion of each excavation and backfill.

33. **Sheetpile Design Standards.** Unocal shall design all sheetpile walls with appropriate safety factors to account for earth pressures, hydraulic head, earthquake loading, equipment loading, and other design features, as appropriate. Engineering designs for excavation and sheetpile shall: (a) be prepared and certified by a licensed civil engineer; (b) conform to Cal/OSHA and County of San Luis Obispo regulations for excavation, shoring and backfill; and (c) be submitted to the Executive Director for review and approval prior to ground disturbance at each plume excavation site.

34. **Sheetpile Impacted by River or Ocean.** For all sheetpile that has the potential to be exposed to currents, wave forces or to direct inundation from either the Santa Maria River or the Pacific Ocean, the seaward edge of the sheetpile and any associated energy dissipation system (which shall be limited to sand berms or sand bags constructed or filled using imported sand or sand from approved borrow areas) shall be designed to withstand the appropriate significant storm conditions as follows:

    a. Excavation activities shall employ appropriate engineering controls and procedures to prevent the release of hydrocarbons to the environment in the event of overtopping or flooding.

    b. For all sheetpile and associated energy dissipation systems for excavation sites other than 5X, design conditions shall be specified, in detail, on the engineering plans. The engineering plans shall be submitted to the Executive Director for review and approval.

    c. The sheetpile for the 5X West and East plume excavations shall be designed to withstand the March 1, 1983, wave conditions (noted as the 100-year storm event), resulting in a maximum wave run-up height of 8 feet, combined with a 7-foot astronomical tide, and a scour depth of 0.0 feet (local Guadalupe datum). Engineering designs for the 5X sheetpile and associated energy dissipation system shall be submitted to the Executive Director for review and approval prior to ground disturbance at each plume excavation site.

35. **Tsunami.** In the event of a tsunami warning, all personnel and all movable construction equipment shall be removed from the beach area and moved to a safe elevation, based upon the warning. If no elevation is given in the warning, all personnel shall be evacuated to an elevation at or greater than 100’ mean sea level and movable equipment shall be moved to

or above the "B" road. If equipment cannot be moved within the time allowed by a tsunami warning, to the extent safe and feasible, equipment shall be secured or anchored, and efforts shall be made to remove or drain all fuel tanks and to take all safe steps to prevent marine releases of hydrocarbons.

36. **Backfill Sand Sources.** Unocal may stockpile contaminated soil at Tank Battery 9 or Tank Battery 8 pursuant to the *Former Guadalupe Oil Field Implementation Plan, May 15, 1998* (with subsequent amendments June 15, 1998 and October 27, 1998). Backfill sources may include:

    a. Treated soil that satisfies the RWQCB parameters for concentrations of TPH and other constituents for approved backfill material;

    b. Borrow site Q11;

    c. Borrow site Q4; and

    d. Clean material stockpiled on site from previous activities.

    Material treated at an on-site thermal desorption unit that satisfies the RWQCB's treatment parameters for approved backfill material.

37. **Sediment Grain-Size Analysis.** Sediment grain-size analysis of the removed and replacement material for each excavation site shall be conducted, recorded and submitted to the Executive Director for review and approval unless Unocal demonstrates that grain size is not a concern for any particular excavation due to the backfill sequence or excavation location. No filling of an excavated area shall occur until the grain-size compatibility between the removed sediment and the replacement sediment is approved by the Executive Director. To evaluate replacement material suitability, Unocal shall provide the following information:

    a. Sources of possible replacement material;

    b. Volume of replacement material needed;

    c. Sieve analyses for all possible replacement material and native sands (16^{th}, 50^{th}, and 87^{th} percentile grain sizes by weight, at a minimum);

    d. Overfill ratio for sites subject to erosional forces by ocean waves and the river; and

    e. Color analysis and color sample of all native material and replacement material that has a potential to become exposed.

38. **Scheduling Excavations.** Unocal shall schedule to the maximum extent feasible excavations that are located within the viewshed of Rancho Guadalupe County Park during periods of lowest visitation (December through March) to Rancho Guadalupe County Park.

39. **Warning Public of Project Activities.** Prior to commencing with project activities, all areas with hazards associated with mechanical equipment, physical barriers, and excavation shall be clearly marked, warning the public of the hazards, and informing the public of the activities that are taking place. Adequate fencing shall be constructed around these areas to prevent trespassing and vandalism throughout the remedial and restoration period. During active remediation activities that take place near points of public access at the beach, Unocal shall station a worker at the beach to keep the public at a safe distance from active remediation hazards.

40. **Posting Signs.** At least one week before beginning project activities, Unocal shall coordinate with the Nature Conservancy and the California Department of Parks and Recreation to provide notice to beach users of project activities. Signs in English and Spanish shall be posted at the Rancho Guadalupe County Park and Oso Flaco Lake Natural Area parking lots. The signs shall indicate that the beach will remain open during remedial activities.

41. **5X Sheetpile Wall Removal.** The 5X sheetpile wall shall be removed at the earliest opportunity following excavation of the 5X plume. If the river or lagoon is present in front of the 5X sheetpile wall at the time of its removal, Unocal shall take the following actions:

    a. Schedule sheetpile removal for the period November through January to avoid nesting of the tidewater gobies, unless otherwise allowed by the USFWS; and

    b. Prior to removal of the 5X sheetpile wall, Unocal shall contour the land on the west side of the site to a stable slope that would minimize the probability of a cave-in into the lagoon or river after the sheetpile and HDPE walls are removed.

42. **Geobag Removal.** Unocal shall remove all geobags at the earliest opportunity following excavation of all plumes and sumps authorized by this permit.

43. **Conservation Easement.** Prior to the lapse of existing Offer to Dedicate ("OTD") Instrument No. 23795**,** Unocal shall offer for dedication to a public agency or private conservation organization approved by the Executive Director, a conservation easement covering an area extending from the southerly boundary to the northern boundary of the site, from mean high tide easterly to the east side of the B Road. This new offer to dedicate shall, when recorded, supercede and replace the existing OTD. In order to expedite acceptance of either the existing OTD or the new69 replacement OTD, Unocal shall also issue a fully executed Indemnification Agreement in form and content as set forth in Exhibit 16 to any entity approved in writing by the Executive Director (in consultation with the County of San Luis Obispo Planning Director) to accept the OTD. The Indemnification

Agreement shall provide that it shall take effect upon the recordation by the approved entity of its acceptance of the OTD. The OTD shall be effective for at least 25 years after the issuance of a closure letter for the site by the RWQCB and shall be consistent with the requirements of CDP 409-24 issued by the California Coastal Commission on January 4, 1980. Unocal may seek an amendment to this permit requesting a modification of the requirements of this condition on the ground that circumstances beyond Unocal's control, such as a refusal to the current owners of the Guadalupe Dunes to transfer title to that property to Unocal despite Unocal's best efforts to effectuate such a transfer, make it impossible for Unocal to comply with such requirement by the deadline specified for such compliance.

44. **Public Access Easement.** Prior to the lapse of existing OTD Instrument No. 23796, Unocal shall offer for dedication to a public agency or private conservation organization approved by the Executive Director and the County of San Luis Obispo Planning Director a public access easement covering an area extending from the mean high tide line, east 300 feet from the southerly to the northerly property lines of the site for the purpose of managed public access (*e.g.*, no public access during the nesting season of the snowy plover). This new offer to dedicate shall, when recorded, supercede and replace the existing OTD. In order to expedite acceptance of the existing OTD or the new replacement OTD, Unocal shall also issue an Indemnification Agreement in form and content as set forth in Exhibit 16 to any entity approved by the Executive Director (in consultation with the County of San Luis Obispo Planning Director) to accept the OTD and the Indemnification Agreement shall provide that it shall take effect upon the recordation by the approved entity of its acceptance of the OTD. The OTD shall be effective for at least 25 years after the issuance of a closure letter for the site by the RWQCB and shall be consistent with the requirements of CDP 409-24 issued by the California Coastal Commission on January 4, 1980. Unocal may seek an amendment to this permit requesting a modification of the requirements of this condition on the ground that circumstances beyond Unocal's control, such as a refusal to the current owners of the Guadalupe Dunes to transfer title to that property to Unocal despite Unocal's best efforts to effectuate such a transfer, make it impossible for Unocal to comply with such requirement by the deadline specified for such compliance.

4.0 FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

4.1 Project Location

The Guadalupe oil field site is located on the central coast of California approximately 15 miles south of the City of San Luis Obispo (Exhibit 1). It occupies over 2,700 acres of the larger Guadalupe–Nipomo Dunes Complex. Most of the site is within San Luis Obispo County, though a small portion extends into Santa Barbara County along the southern boundary. The site is bounded on the south by the Santa Maria River and estuary/lagoon system, on the west by the

Pacific Ocean, on the north by Nature Conservancy-managed sand dunes, and to the east by agricultural land.

The majority of the site consists of sand dunes ranging up to approximately 160 feet in elevation, while the western edge of the site is a relatively flat beach.

4.2 Project Background

4.2.1 History of Oil Production at Guadalupe

The Guadalupe oil field site is owned by the Andre Leroy and Eugene Rene Leroy Trusts and has been leased to Unocal since 1950. Oil exploration and production began on the Guadalupe site with the Sand Dune Oil Company in 1946. Unocal has operated the Guadalupe oil field since 1953. By 1988, the field contained 215 potential producing wells and field-wide oil production rates of 3,500 barrels per day. About 23 wells remained in operation until April 1994.

In the 1950's, Unocal introduced a refined petroleum hydrocarbon referred to as "diluent" (a kerosene-like additive used to thin oil) to assist in the production and transportation of heavy crude oil. The diluent was transported to the site by pipeline and truck and distributed throughout the oil field by a system of storage tanks and pipelines. Over the years diluent leaked from tanks and pipelines and is now present in soils and groundwater at the site.

4.2.2 Discovery of Contamination/Site Assessment

In January 1988, petroleum hydrocarbons were first discovered by surfers on the beach and in the ocean at the Guadalupe oil field. In January 1990, California Department of Fish and Game ("CDFG") staff noticed diluent surfacing in the sand in front of the 5X well pad. At that time, the Central Coast Regional Water Quality Control Board ("RWQCB") ordered Unocal to investigate the source of the diluent spill. In February 1990, Unocal reported oil on the beach, shut down field operations and discontinued use of diluent in its production operations[2].

In March 1990, Unocal installed a subsurface bentonite slurry wall in front of the 5X well area to stop diluent from reaching the ocean. The CDFG and the RWQCB also discovered diluent surfacing at a site called C-12 that is adjacent to the river estuary. In December 1991, Unocal installed a subsurface high density polyethylene ("HDPE") wall at the C-12 site to prevent migration of the diluent into the river.

Because diluent continued to surface on the beach, the RWQCB in 1993 ordered a site-wide investigation of petroleum-hydrocarbon contamination in the soil and groundwater at the oil field. The CDFG investigation also led to the filing of criminal charges against Unocal and six of its employees. The defendants pleaded "no contest" to the criminal charges, were placed on three years probation, and fined $1.3 million.

[2] For a short period of time, Unocal brought part of the field back into production and used warm water, not diluent, to enhance crude oil production and transportation.

Since 1993, Unocal has conducted site assessment activities throughout the oil field under the direction of the RWQCB. To date, over 90 diluent plumes and 150 sumps (*i.e.,* areas of concentrated and contaminated wastes consisting of drilling muds, heavy metals, and a variety of petroleum products) have been identified (Exhibits 2 and 3). Between 8.5 and 20 million gallons of petroleum hydrocarbons are present in the soil and groundwater.

The contamination consists of both "separate-phase" (*i.e.,* free product) and "dissolved phase" diluent. Since diluent is lighter than water and has a low solubility, most of the diluent spilled to the shallow dune aquifer remains as separate-phase and "floats" on top of the water. Separate-phase diluent is also present in the soil column above the groundwater. Some of the diluent dissolves into the groundwater and moves downstream with the groundwater flow, generally from east to west (*i.e.,* dissolved-phase). This has resulted in groundwater contamination beneath much of the site with a flux toward the ocean and Santa Maria River. In several areas the contaminated groundwater is entering surface water bodies. Of the diluent contaminated areas, there are four very large plumes: the 5X beach area, the Diluent Tanks area, the Compressor Plant area and Tank Battery 9 (Exhibit 2). The thickness of diluent floating on the water table ranges from a sheen on top of the water to thicknesses of almost 6 feet.

4.2.3 Coastal Commission Original Permit Jurisdiction

The entire Guadalupe oil field site is within the coastal zone. The County of San Luis Obispo has a certified local coastal program ("LCP") and therefore has coastal permitting jurisdiction over the majority of the site. The Coastal Commission retains permitting jurisdiction over the area of the site that are public trust lands, tidelands and submerged lands[3] (See Exhibit 4). All County-issued coastal permits for development at the site are appealable[4] to the Coastal Commission.

4.2.4 History/Summary of Past County and Coastal Commission Permits

Installation of a Bentonite Wall

In January 1990, diluent was found to be leaking from the 5X area into the marine environment. In March 1990, Unocal installed a subsurface bentonite/soil barrier slightly above the mean high tide line within an area that falls within the County's coastal permit jurisdiction. The wall was about 800 feet long by 18 feet deep and 4 feet wide. The wall was intended to create a barrier to further seaward migration of the diluent. Fifteen wells were installed on the landward side of the wall to extract diluent and prevent it from flowing around the bentonite wall.

[3] The extent of tidelands and submerged lands is based on the "mean high tide line." Because this is an ambulatory line, maps depicting the Commission's retained and appeal jurisdiction cannot precisely show this boundary.

[4] Coastal Act § 30603(a)(1)(2)(5) allows for appeals of development (a) located between the sea and the first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tide line of the sea where there is no beach, whichever is the greatest distance, or (2) located within 100 feet of any wetland, estuary or stream, or (c) which constitute a major public works project or a major energy facility.

5X Beach Excavation

Additional diluent releases from the 5X area in January and April 1994 resulted in the U. S. Coast Guard directing Unocal to secure immediately all marine releases at Guadalupe. In August 1994, the Coastal Commission's Executive Director issued to Unocal emergency permit E-94-12 to excavate oil-contaminated sands in the 5X area.

Contaminated sand on the beach area was excavated to a depth of about 20 feet and removed from the beach to a treatment area. About 136,000 cubic yards of contaminated sand was treated using thermal desorption units that vaporize the diluent and incinerate the vapors. To remove the contaminated sand, Unocal constructed a large temporary sheetpile cofferdam (about 2,200 lineal feet of sheetpile varying in depth from 33 to 44 feet) on the beach. Unocal pumped extracted diluent to a temporary storage tank. About 250,000 gallons of diluent were removed from the excavation area.

This emergency work removed only a portion of the 5X plume. Concurrent with the beach excavation project, Unocal removed the bentonite wall and replaced it with a high density polyethylene ("HDPE") barrier wall to act as a barrier to prevent separate-phase diluent from migrating to the beach and ocean. Unocal installed extraction wells behind the HDPE wall to pump out diluent and contaminated groundwater.

5X Sheetpile Wall Installation

During 1995, the Santa Maria River changed course such that the outlet moved further north 3,000 feet along the beach to within 45 feet of the 5X area. This presented a serious threat to the HDPE wall. In November 1995, to protect the HDPE wall from damage resulting from further northward movement of the Santa Maria River, the Commission's Executive Director issued to Unocal emergency permit E-95-15-G to install a subsurface 370 lineal feet sheetpile protection wall on the beach. In November 1996, the Commission's Executive Director approved a second emergency permit (E-96-2-G) to extend the sheetpile wall 1,033 feet to the north and 450 feet to the southeast. In February 1997, the Commission's Executive Director issued a third emergency permit to strengthen the sheetpile wall with H-beam walers. Emergency permit E-97-03-G supercedes and also includes the earlier two emergency permits for the sheetpile wall.

Unocal proposes to keep the 5X sheetpile wall in place until the petroleum hydrocarbon-affected sand at the 5X site is removed.

Leroy 2 Sump Removal

During the spring and summer of 1995, when the Santa Maria River migrated north, a former sump associated with the abandoned Leroy 2 well was exposed approximately 800 feet south of the 5X plume (Exhibit 5). The sump released a sheen into the lagoon and river.

In November 1995, the California Department of Fish Game's Office of Spill Prevention and Response ("CDFG/OSPR") issued to Unocal Cleanup or Abatement Order 95-111 to prevent the release of contaminants into surface waters. On November 30, 1995, the Commission's Executive Director issued emergency permit E-95-18-G to remove the sump. The sump footprint area was about 50 feet wide by 350 feet long and contained about 2,840 cubic yards of contaminated material. The river subsequently eroded the area where the sump was located.

A2A South Plume/Sumps and Geobag Placement

During the 1998 winter storm season, the Santa Maria River rapidly eroded away the northerly bank of the river near its outlet to the Pacific Ocean, threatening to expose four areas that contained hydrocarbon-affected material. In March 1998, the Commission's Executive Director issued to Unocal emergency permit E-98-03-G (which was modified in May 1998 and superceded by E-98-09-G) to remove the contaminated material before the river reached the area.

Emergency permit E-98-09-G specifically authorized: (a) removal of known sumps located at the southwest corner of the oil field (known as the A2A area); (b) temporary installation of 1,035 feet sheetpile and excavation of petroleum-hydrocarbon contaminated soil from an area known as the A2A plume; (c) placement of up to 160 geobags (*i.e.*, rectangular shaped bags fabricated of geotextile material each containing 8 cubic yards of sand) along the upper edge of the river bank next to the southwest corner of the "A" road; and (d) placement of up to 215 geobags along the A2A plume sheetpile wall if the river migrated to within 125 feet of the A2A plume.

Also, during the A2A area emergency work, Unocal, without benefit of a coastal development permit (*i.e.*, it was not included among the list of activities approved under emergency permit E-98-09-G) (Exhibit 5) improved the "loop" road that straddles two marsh ponds. In the course of improving the loop road, Unocal placed about 200 tons of rock and sand in the wetlands and smothered about 50 La Graciosa thistle, a California-listed threatened plant species. Unocal has agreed to remove the road base material from the loop road and develop and implement a La Graciosa thistle restoration and enhancement plan. Commission staff plan to bring the restoration proposal to the Commission at a future hearing as a separate coastal development permit application. USFWS and CDFG biologists have recommended to Commission staff and other permitting agencies that the road restoration work be carried out in September 2000, after the western snowy plover nesting and the California red-legged frog breeding seasons.

4.2.5 Environmental Impact Report

By 1996, Unocal had discovered 90 diluent plumes at the site and began developing an overall site remediation plan. In March 1996, Unocal submitted to San Luis Obispo County and the RWQCB a Remedial Action Plan ("RAP") to address the dissolved-phase and separate-phase diluent contamination in the soil and groundwater at the oil field. Unocal proposed a variety of approaches that includes containment (*e.g.*, physical and hydraulic barriers), treatment (*e.g.*, excavation or biosparging), and monitoring (*e.g.*, no cleanup of certain plumes).

The County used the RAP to begin the California Environmental Quality Act ("CEQA") review process for overall site cleanup and abandonment of the oil field. The Environmental Impact Report ("EIR") developed as part of the CEQA review evaluated the potential environmental impacts of the proposed cleanup and abandonment plan only, not the effects of the spill itself. The effects of the spill were evaluated through a separate Natural Resource Damage Assessment ("NRDA") process undertaken by the CDFG/OSPR and other California state trustee agencies (see Section 4.2.7 of this report).

The EIR evaluated a number of cleanup technologies that could be used at Guadalupe. A total of 100 remedial alternatives (*e.g.*, excavation, bioremediation, biosparging, pumping, containment with physical or hydraulic barriers) were first screened to determine their feasibility. Of the 100, the EIR identified 30 technologies that could "achieve effective cleanup" within 10 years and would result in the least environmental impacts. The EIR developed in detail two approaches to site cleanup: (a) excavate all plumes, or (b) use a mix of technologies that include excavation, biosparging, pumping, etc. The plumes located in the Commission's permit jurisdiction are to be excavated, notwithstanding the potentially significant adverse habitat impacts caused by excavation, since these plumes have the potential to release hydrocarbons into the river and ocean.

In March 1998, the County certified the EIR for Unocal's proposed Guadalupe cleanup and abandonment plan with the understanding that there would be future supplemental environmental review, as necessary, if new areas of contamination are discovered at the oil field or Unocal proposes project changes.

The County has since prepared an addendum to the EIR (September 1999) to address project changes such the excavation of newly discovered sumps that were not known at the time the EIR was prepared. The addendum also evaluated taking sand from an area of the site known as Q4 for excavation backfill material.

4.2.6 Cleanup or Abatement Order No. 98-38

In April 1998, the Central Coast RWQCB issued Cleanup or Abatement Order ("CAO") 98-38 (as amended November 1998) requiring Unocal to abandon and remediate the oil field using various technologies (Exhibit 6). The RWQCB decided to take a phased approach to site cleanup, proceeding first with cleanup of the 17 most critical plumes (those known to be introducing petroleum hydrocarbons into surface waters) while continuing with investigations into the total extent of site contamination. This phase of the cleanup project is referred to as "Phase 1" and is scheduled to take five years to complete. Phase 1 includes remediation of the large 5X plume located within the Commission's permit jurisdiction.

4.2.7 Natural Resource Damage Settlement

In March 1994, the California Attorney General's Office, representing the California Department of Fish and Game, the California Department of Toxic Substances Control ("DTSC"), the

Central Coast RWQCB, and California Coastal Conservancy, filed suit against Unocal for damages caused by Unocal's spill at the Guadalupe oil field. The lawsuit was settled in July 1998 when Unocal agreed to pay $42.5 million in civil penalties and natural resource damages. The Stipulated Judgment includes the following terms (Exhibit 7):

- $9 million to fund projects to restore, replace, rehabilitate and/or acquire the equivalent of the natural resources and related services that were injured, lost or destroyed by diluent releases. CDFG/OSPR and the Coastal Conservancy will allocate the funds;

- $15 million for water quality projects within the Central Coast region to be selected by the RWQCB;

- $11.1 million to CDFG to be deposited into the Fish and Wildlife Pollution Account for inland resource protection and pollution response;

- $375,000 to CDFG/OSPR's Environmental Enhancement Fund to be allocated by CDFG/OSPR and the Coastal Conservancy;

- $700,000 to DTSC; and

- The remaining funds go to the Attorney General's Office, CDFG/OSPR and others for costs associated with the lawsuit.

4.2.8 San Luis Obispo County Approves Coastal Development Permit/ Development Plan D890558D

On September 22, 1998, the San Luis County Board of Supervisors approved coastal development permit/development plan D890558D for Phase 1 of the Guadalupe oil field remediation and abandonment project. The County's coastal permitting jurisdiction covers 14½ of the 17 Phase 1 plumes.

4.2.9 Appeal by Commissioners Wan and Areias

On October 19, 1998, Coastal Commissioners Wan and Areias filed an appeal (A3-98-91) of the County's decision. The appellants contended that the development as described in coastal development permit/development plan D890558D did not conform to the County's certified LCP policies concerning public access, recreation and habitat preservation for the following reasons:

- LCP Policy section 23.04.420 establishes criteria for the requirement of public access that the appellants believe were not met by the conditions of the County permit. Specifically, Conditions 171 and 172 required Unocal to extend existing offers to dedicate ("OTDs") of lateral public access and conservation easements originally required in a 1980 Coastal Commission permit (CDP 409-24) "to at least 25 years after the issuance of a closure letter for the site by the RWQCB." It has been 19 years since the OTDs were originally required

and, because of ongoing site contamination, the OTDs have not been accepted by a public agency or private non-profit. To be fully consistent with the public access components of the certified LCP and the Coastal Act, the appellants stated that Unocal must include an indemnification provision within the OTDs so that they can be expeditiously accepted.

- The County's conditions for habitat protection and restoration are in many cases vague, inconsistent and lack performance standards to ensure that environmentally sensitive habitats are protected and restored as required by LCP policies 23.07.160 and 23.07.170.

At the November 1998 Commission meeting, staff recommended that the coastal permit approved by the County raised Coastal Act and LCP concerns regarding its conformity with public access, recreation and habitat preservation policies. Commission staff therefore recommended that the appeal raised a "substantial issue." However, Commission staff qualified its recommendation with the view that the issues raised by the appeal could be resolved if the County revised its conditions of approval to address fully the LCP and Coastal Act issues that were of concern.

Commission staff proposed to work with the County and Unocal in developing draft changes to the County's conditions for consideration by the Commission at a future hearing. If changes were agreed upon, the County would consider the revised conditions and adopt a revised permit. If the Commission was confident that all Coastal Act and LCP deficiencies were addressed, then the appeal could be withdrawn and the County's revised permit would be in effect.

The Commission agreed to allow staff to work with the County in developing revised conditions of approval and continued the Substantial Issue appeal hearing until December 1998.

At the December 8, 1998, Commission hearing, the Commission reviewed (a) revised conditions of approval to be added to the County's coastal permit to address the LCP and Coastal Act issues raised in the appeal, and (b) a draft Indemnification Agreement to be executed by Unocal for the OTDs. The County staff proposed taking these changes to the County Board of Supervisors for adoption at its December 10, 1998 hearing. The Commission agreed to this approach and passed a resolution opening and continuing the Substantial Issue appeal hearing. The Commission also concurred in the withdrawal by Commissioners Wan and Areias of the appeal if the County Board of Supervisors adopts the suggested revised conditions of approval.

On December 10, 1998, the County Board of Supervisors adopted the proposed revised set of conditions of approval and approved a revised permit (Exhibit 8).

On January 13, 1999, Commissioners Wan and Areias withdrew their October 19, 1998 appeal of the County's September 22, 1998 action.

4.2.10 Discovery of PCBs at Several Plume Sites

RWQCB Cleanup or Abatement Order 98-38, as amended in November 1998, required Unocal to test diluent-contaminated soil at the oil field for non-diluent compounds (*i.e.*, Title 22 metals, polycyclic aromatic hydrocarbons, volatile organic compounds, and semi-volatile organic compounds).

In December 1998, Unocal submitted a report to the RWQCB that showed the presence of detectable levels of polychlorinated biphenyls[5] ("PCBs") in diluent samples taken from several plume sites, including 5X[6]. PCBs were also discovered in samples taken from the Diluent Tank area, Tank Battery 9, Tank Battery 8 and the Compressor Plant site. PCBs have not been identified outside of diluent-affected areas nor have they been detected in groundwater or in pond sediments.

After receipt of the initial results from the testing for non-diluent compounds, the USFWS and CDFG/OSPR were concerned that the Aroclor method used by Unocal for detecting PCBs was not sufficiently sensitive. Unocal agreed to retest all PCB-containing sites using congenor and homologue analyses, and incorporate that information in a site-wide ecological risk assessment.

Given the urgency of addressing remediation of those plume sites closest to the ocean and the Santa Maria River, Unocal proceeded first with site-specific testing and ecological risk assessments for the 5X beach and A2A North sites. (Re-testing of the rest of the PCB-containing sites, and the accompanying site-wide risk assessment, are expected by mid-2000).

Congenor and homologue PCB analyses of the additional soil samples taken from 5X and A2A supported the earlier (Aroclor) test results, indicating relatively low levels of non-diluent compounds, including PCBs, at these sites. These additional results, as well as results from several earlier studies on PCB risks to ecological receptors, were entered into an ecological risk assessment.

The ecological risk assessment for 5X and A2A North sites concluded that given the relatively low levels of PCBs and other non-diluent compounds, the remedial actions will not cause substantial incremental ecological risk to marine, aquatic or terrestrial plants or wildlife. (See Exhibit 9 for Executive Summary of 5X Beach and A2A North ecological risk assessment.) The RWQCB, CDFG/OSPR, the National Oceanic and Atmospheric Administration ("NOAA"), and the California Office of Environmental Health and Hazard Assessment (which served as a

[5] PCBs, a family of synthetic chlorinated organic compounds, are carcinogenic and known to cause birth defects, reproductive alterations, liver damage, wasting syndrome and cancer. Invertebrates and fish are not very sensitive to the effects of PCBs. The main ecological concern with PCBs is biomagnification to upper levels of the food chain, usually wildlife that consume fish. The environmental medium of most concern is pond, lake and estuary sediments. Unocal has not identified the source of the PCBs in the diluent. A possible PCB source at the field includes oil for transformers and air compressors, but this does not explain the presence of PCBs in the diluent.

[6] PCB concentrations ranged up to 15 parts per million ("ppm") in free product, to 0.3 parts per billion ("ppb") in surface and ground water, to 30 ppb in pond sediment, and from less than 30 ppb up to 640 ppb in soils. 5X PCB concentrations in soil ranged to 05 ppm and in free product to 11 ppm.

consultant to the RWQCB) reviewed the ecological risk assessment for the 5X and A2A North sites and concurred with its conclusions. Accordingly, the agencies directed Unocal to proceed with its plans to excavate the 5X and A2A North plumes, as originally required by CAO 98-38.

4.2.11 Summary of Remedial/Abandonment Activities Undertaken to Date

Although the Phase 1 remediation schedule slipped due to the discovery of PCBs, Unocal has to date removed tanks and other associated infrastructure at the Diluent Tank Battery and Tank Battery 9 sites and removed 9.56 miles (50,500 feet) of pipeline throughout the oil field. Unocal has also installed biosparging[7] systems at Tank Battery 8, Tank Battery 9 and the former site of the Compressor Plant. The B3 sump has been excavated and a pilot phytoremediation project at the O13 site has been initiated. Pipeline abandonment also continues in areas outside of the Coastal Commission's permit jurisdiction.

4.3 Project Description

4.3.1 Past Beach Projects Authorized Under Emergency Projects

Unocal seeks follow-up approval for remediation work conducted previously under the authority of emergency permits issued by the Coastal Commission's Executive Director. Between 1994-1998 the Executive Director issued the following emergency permits:

Emergency Permit E-94-12-G

In August 1994, the Executive Director issued to Unocal emergency permit E-94-12 to excavate oil-contaminated sands in the 5X area and install a 965-foot long high-density polyethylene ("HDPE") wall on the beach to prevent further migration of diluent to the ocean (Exhibit 5).

Contaminated sand on the beach area was excavated to a depth of about 20 feet and removed from the beach to a treatment area. About 136,000 cubic yards of contaminated sand was treated using two thermal desorption units (located within the County's permit jurisdiction) to vaporize the diluent and incinerate the vapors. To remove the contaminated sand, Unocal constructed a large temporary sheetpile cofferdam on the beach. Unocal pumped extracted diluent to a temporary storage tank. About 250,000 gallons of diluent were removed from the excavation area. Thermally treated sand and stockpiled clean overburden (about 26,000 cubic yards) was used as backfill material on the beach.

This emergency work removed roughly one-third of the 5X plume. Concurrent with the beach excavation project, Unocal removed the bentonite wall and replaced it with a 965-foot long by 22-foot deep HDPE barrier wall to act as a barrier to prevent separate-phase diluent from

[7] Biosparging is a process where air is introduced to the subsurface below the water table to promote the growth of aerobic microorganisms that could degrade the dissolved-phase diluent. Biosparging can be accomplished using vertical or horizontal wells. As the injected air sweeps upward through the diluent-affected groundwater and soil, it may also transfer volatile compounds from a liquid to a vapor phase.

migrating to the beach and ocean. Unocal installed extraction wells behind the HDPE wall to pump out diluent and contaminated groundwater accumulating behind the HDPE barrier. All temporary sheetpile was removed following HDPE wall installation.

Emergency Permit E-95-18-G

During the spring and summer of 1995, the Santa Maria River migrated northward up the beach and exposed a former sump associated with the abandoned Leroy 2 well located 800 feet south of the 5X HDPE wall (Exhibit 5). The sump released a sheen into the lagoon and river.

In November 1995, the CDFG/OSPR issued to Unocal a Cleanup and Abatement Order 95-111 to prevent the release of contaminants into surface waters. On November 30, 1995, the Commission's Executive Director issued emergency permit E-95-18-G to remove the sump. The sump footprint area was about 50 feet wide by 350 feet long and 2,840 cubic yards of contaminated material was removed. The river subsequently eroded this area where the sump was located.

Emergency Permit E-97-03-G

When the Santa Maria River migrated northward in Spring of 1995 it threatened to erode the sand supporting the HDPE wall in the 5X area. In three phases between March 1995 and February 1997, Unocal installed a total of 1,835 lineal feet of temporary sheetpile wall on the beach directly in front of the HDPE wall that was installed in the summer of 1994 under emergency permit E-94-12 (Exhibit 5). The purpose of the 5X sheetpile protective wall is to prevent scouring and undercutting of the existing HDPE wall due to the northern migration of the Santa Maria River. The sheetpile wall and the HDPE wall remain in place to prevent a marine release of diluent from the remaining two-thirds of the 5X plume until the 5X plume is fully excavated.

Sheetpile installation involved excavating about 1500 cubic yards of vegetated overburden and 12,320 cubic yards of clean unvegetated overburden, transporting the sheetpile from staging areas with a forklift and driving the piles with a crane-mounted electric or hydraulic pile hammer. The individual piles were driven to a depth of approximately –29 feet mean surface level ("msl"). The top elevation of the sheet pile is +15 feet msl. The site was backfilled and re-contoured with the stockpiled sand to its pre-construction grade. In 1997, movement of the river along the sheetpile wall caused deep scour along the southwest corner. To create a unified structural element in the existing sheetpile wall, Unocal welded steel H-beam walers to the face of the pile on both sides of the southwest corner.

Unocal proposes to remove the sheetpile protection wall when hydrocarbon-affected soils behind (*i.e.,* eastward) the HDPE wall are removed. The 5X sheetpile protection wall will be in place for a total of about five years until March 2001.

Emergency Permit E-98-09-G

During the 1998 winter storm season, the Santa Maria River rapidly eroded the northern bank of the river near its outlet to the Pacific Ocean, threatening to expose four areas that contained hydrocarbon-affected material. In March 1998, the Commission's Executive Director issued to Unocal emergency permit E-98-03-G (which was modified in May 1998 and superceded by E-98-09-G) to remove the contaminated material before the river reached the area.

In February 1998, Unocal commenced to: (a) excavate the Leroy 3 sump, the 2X sump and the Leroy 2 access road sump (a total of 7,490 cubic yards of sump material) located at the southwest corner of the oil field; (b) excavate 26,400 cubic yards of petroleum hydrocarbon-affected soil from an area known as the A2A South plume; and (c) place 121 geobags (*i.e.*, large sand bags 8 feet wide by 10 feet long by 3.5 feet high) along the upper edge of the river bank next to the southwest corner of the "A" road.

4.3.2 Proposed Beach Projects

Unocal proposes also to: (a) remove oil field pipelines no longer in use; (b) excavate those plumes and sumps that lie within the Coastal Commission's permit jurisdiction; (c) widen the "A" road; (d) install up to 100 monitoring wells; (e) modify and eventually remove associated infrastructure such as power, well pads and access roads; and (f) place additional geobags, if necessary. The proposed activities, known as the "Beach Projects", are described below.

Pipeline Removal

Unocal proposes to remove 2.29 miles of oil pipeline that lie within the Coastal Commission's permit jurisdiction (Exhibit 10).

Throughout the oil field, Unocal has categorized the pipelines according to accessibility and proximity to ground surface. Category A pipelines are easily accessible and within 25 feet of an established access point. Category B pipelines are located more than 25 feet from an access point, lie below no more than two feet of ground surface and typically have no sensitive vegetation. Category C pipelines are more than 25 feet from an access point, are more than two feet below ground surface, or are located in an area with sensitive plant or animal species. The majority of Category C pipelines will be abandoned in place and filled with sand slurry. However, the County has required in coastal development permit/development plan D890558D that all Category C pipelines west of the "B" road in bare sand areas (*i.e.*, closest to the shoreline and meandering river) be removed. Therefore, Unocal proposes to remove all Category C pipelines that lie within the Commission's permit jurisdiction.

The 2.29 miles of pipeline proposed for removal include 542 lineal feet of Category A, 7,895 lineal feet of Category B, and 3,652 lineal feet of Category C pipelines.

To remove the Category B and C pipelines, Unocal will survey off road access corridors to determine the least environmentally sensitive areas. Wherever possible, the corridor will be established in an already disturbed area to minimize habitat impacts. Many of the pipelines will be removed during plume excavation activities.

Plume Excavation

Unocal proposes to remove by excavation diluent plumes at the 5X, A2A North and A5A sites (Exhibit 10). Unocal will conduct additional soil-boring activities to delineate further the areal extent of each plume, if required by the RWQCB. Each plume area will be shored with temporary sheetpile. Sheetpile will be installed at least 15 feet outside the 1,000 mg/kg Total Petroleum Hydrocarbon ("TPH") contour unless otherwise approved by the RWQCB.

Diluent plume excavation activities include:

- Removing and stockpiling the top 12 inches of vegetated "overburden" using scrapers, excavators, trucks and/or bulldozers. Site-wide stockpile locations will be used or new locations in areas that were previously disturbed, altered, planned for use in future excavation, or unvegetated.

- Using a crane-mounted electric or hydraulic pile hammer, Unocal will drive 33 to 75 foot long sheetpile.

- The remaining clean (unvegetated) overburden will be removed and temporarily stockpiled.

- The affected (diluent contaminated) material will be excavated, loaded into trucks, and transported to Tank Battery 8 or Tank Battery 9 where it will be stockpiled for future treatment.

- If free product is floating on the surface of the groundwater in the excavation pit, mechanical skimmers or vacuum trucks will be used to remove it.

- The bottom of the excavation will be "polished" using a submersible slurry dredge pump, if necessary. The slurry will be pumped to a decant area positioned within, or a desander/ deoiler area located near the excavation site. After the sand, water and hydrocarbons are separated, the water will be returned to the excavation site. Hydrocarbons and affected sand will be transported to Tank Battery 8 or Tank Battery 9 for future treatment.

- The bottom of each excavation will be sampled for TPH using a 25-foot grid and the samples analyzed by a state-certified lab. The RWQCB is requiring in CAO 98-38 that the mean concentration of soil samples collected at the bottom of each excavation not exceed 700 mg/kg TPH. Backfilling of all excavations with clean sand will first require authorization by the RWQCB.

- The excavation will then be backfilled using the clean overburden from the site, sand imported from an on-site borrow location, and/or remediated sand from Unocal's on-site Land Treatment Unit[8].

- The sheetpile will be removed and the area will be covered with a layer of the native clean overburden removed from the site in a configuration that approximates the original contours or the approved post-construction grading plan. The vegetated overburden will be spread over the previously vegetated areas.

Up to 100 monitoring wells will be temporarily placed at the excavated sites as a RWQCB post-construction monitoring requirement. The specific locations and numbers of wells at each excavation site will be determined by the RWQCB after each site excavation is complete.

5X Plume

The large 5X plume will be removed in two subsequent years (between August and March of each year) to avoid each year's western snowy plover nesting season. Unocal divided the 5X plume into two areas, 5X West and 5X East. The 5X West area will be excavated first, since it has the greatest exposure to river migration and wave action. To conduct the excavation, a temporary staging area, equipment pad and access road will be constructed with aggregate or red rock adjacent to the southern edge of the 5X West excavation. All will be removed when 5X site activities are complete. In addition, diluent extraction wells will be installed at 5X East.

The 5X West plume consists of approximately 74,000 cubic yards of affected material. To remove the affected material, about 6,400 cubic yards of vegetated overburden and 87,000 cubic yards of clean overburden will be excavated and stockpiled. To conduct the 5X West project, approximately 2,590 lineal wall feet of sheetpile will be driven at the excavation boundaries to form the new north, south, east and west walls. The existing HDPE wall installed during the 1994 excavation project will be removed during excavation activities. Following 5X West activities, Unocal will remove 1,742 lineal wall feet of sheetpile (828 lineal feet of sheetpile will be left in place for the 5X East excavation).

The 5X lineal East plume consists of approximately 71,000 cubic yards of affect material. To remove the affected material, about 8,700 cubic yards of vegetated material and 76,000 cubic yards of clean overburden will be removed and stockpiled. To conduct the 5X East project, approximately 1,456 wall feet of sheetpile will be driven along the southern, eastern and northern edges of the 5X East excavation. The 5X East project includes also removal of the A4 sump and well pad located within the plume boundary (Exhibit 10).

Following excavation of 5X East, all sheetpile (approximately 4,119 lineal wall feet) will be removed, including the 5X sheetpile wall (1,835 lineal wall feet) installed in 1995-1997.

[8] Landfarm bioremediation uses naturally occurring microorganisms for the degradation of hydrocarbons. Nutrients and water are added to the affected soil that is exposed to air. Unocal's pilot Land Treatment Unit encompasses about 4 acres at the Tank Battery 9 site.

A2A Plume

The A2A North plume consists of approximately 4,300 cubic yards of affected material. It lies mostly underneath the existing A and 5X access roads and well pads. To remove the affected material, about 1,500 cubic yards of clean overburden will be removed and stockpiled. At this time, Unocal will also remove the Y4/A2A well pads. The 5X access road will be temporarily replaced for use in other excavations.

A5A Plume

The plume at A5A is bisected by the Coastal Commission's permit jurisdiction boundary. There is approximately 2,900 cubic yards of affected material within the Commission's jurisdiction. The site may also contain about 600 cubic yards of sump material. To remove the affected material within the Commission's jurisdiction, about 275 cubic yards of clean overburden will be removed and stockpiled.

Improve Electrical System

Prior to excavating the 5X plume, Unocal, in order to reduce air emissions, proposes to re-route the 5X site's electrical system outside the excavation footprint to provide power for the extraction system. Unocal proposes to install up to 11 new 40–50- foot power poles. Two potential routes for the poles are shown in Exhibit 10. Three or four 750 kVA concrete transformer skids (about 16 feet by 8 feet) will be installed temporarily adjacent to select power poles. The electrical system will be removed upon completion of the Beach Projects.

"A" Road Widening

Construction activities at 5X and other beach excavation sites will require two-way truck traffic so as to avoid use of the nearby "loop" road that lies directly adjacent to wetlands and is a migration area for the California red-legged frog during breeding season. The A road is currently paved with asphalt varying in width from 12–15 feet. Unocal proposes to widen the road to a minimum width of 30 feet between the intersection of the B road and the A2A well pad to accommodate two-way heavy equipment traffic (Exhibit 10). About 1,800 cubic yards of red rock will be used to widen the portion of the A road that lies within the Commission's permit jurisdiction (about 1,100-1,150 feet). A geotextile fabric will be laid prior to placing the red rock to facilitate its eventual removal. Road widening will require the removal of 5,800 cubic yards of clean "overburden" that will be stockpiled on well pads located outside of the Commission's permit jurisdiction.

Unocal proposes to remove the A road when the RWQCB determines that no further remedial actions are required in the area served by the "A" road. Removal of the A road, both the widened and existing portions, will require an amendment to this permit.

Geobag Placement

As of October 1999, the mouth of the Santa Maria River is currently 2,260 feet south of the 5X plume area. If the Santa Maria River migrates north and poses a threat to the 5X site, Unocal proposes to place up to 100 geobags (*i.e.*, large sand bags 8 feet wide by 10 feet long by 3.5 feet high) at the southwest corner of the 5X sheetpile wall for the duration of the 5X excavation project. Unocal also proposes to place up to 40 geobags along the southwest corner of the oil field site if needed for erosion protection (Exhibit 10). Unocal has already placed 121 geobags along the river edge at the southwest corner of the oil field under the authority of emergency permit E-98-09-G.

The geobags will be filled with sand acquired from the Coast Rock quarry or other comparable source. A crane or similar equipment will place each bag on the upper bank of the river, where it can slide into place if the river erodes the sand and undermines the bag. Each bag will be numbered. When the Beach Projects are complete Unocal will remove each bag, including the 121 bags placed under the authorization of emergency permit E-98-09-G. If a bag cannot be lifted intact, it will be cut to release the sand and the bag material will be completely removed.

Remove Sumps and Oil Layers

In November 1998, the RWQCB revised CAO 98-38 to require newly discovered sumps on the western side of the oil field to be excavated. Unocal proposes to remove a total of 14,135 cubic yards of sump material from six sites known as the Leroy 3, A2A, A1/2X, TB4, D14, and B11 sumps (Exhibit 10). Removal of a sump is similar to plume excavation except some sumps may be composed of solid materials only. If during sump removal groundwater is reached and free product is generated, Unocal will use mechanical skimmers, vacuum trucks and/or booms and sorbent material to remove it. The RWQCB will determine when Unocal has successfully removed all sump material and then Unocal will backfill the excavation hole with clean sand.

While removing the sump material, Unocal will also remove any associated access roads and well pads.

The western side of the field also contains two “oil layers”, thin layers of oil that were applied to the sand dunes for stabilization (Exhibit 10). The 5X oil layers, under and near the 5X access road, consist of about 500 cubic yards of thin dry layers of oil. Unocal will remove the 5X oil layers following excavation of 5X East in conjunction with removal of the 5X access road. The Leroy 6 oil layers are located north of the 5X site and consist of about 10,000 cubic yards of affected material.

Backfill Sources

There are several sources for backfill material that will be used to replace the affected material removed from each site. These include existing stockpile sites, material treated at Unocal’s pilot on-site Land Treatment Unit, and on-site “borrow sites” Q4 and Q12.

The Q4 borrow site is a large active sand dune located in the northeast corner of the oil field. The entire sand dune consists of an estimated 9,660,000 cubic yards of sand. Unocal proposes to take up to 500,000 cubic yards of material from the dune for Phase I remediation projects. The Q12 borrow site has already been used for past excavations and could provide an additional 22,000 cubic yards of clean sand.

Beach Project Work Schedule

Projects within the Commission's permit jurisdiction, with the exception of the D14 and B11 sumps, are in beach areas used as nesting habitat by the western snowy plover. These projects will be carried out between the snowy plover breeding seasons (usually September 15 – March 1). However, the beach sites are also in close proximity to wetlands providing breeding habitat to the California red-legged frog. Since the red-legged frog breeds during the winter months, project traffic will be limited to daylight hours to the maximum extent feasible.

Unocal will conduct the work each day between sunrise and sunset. The shift may vary from 8–12 hours per day, 5–6 days per week. However, Unocal may want to extend the work hours into a seventh day, if necessary, to meet the ecological time constraints of the project (such as completing beach activities prior to the snowy plover breeding season).

Unocal plans to conduct the Beach Projects in the following general order: (1) remove the 2.29 miles of pipeline; (2) widen the "A" road and modify the electrical system; (3) excavate 5X West; (4) excavate the remaining portion of the Leroy 3 sump; (5) excavate 5X East and remove any sump/well pad; (6) excavate the A2A North plume, A2A sump, A1/2X sump, and the Leroy 6 and the 5X oil layers; (7) remove the 5X access road and the Y4/A2A well pads; (8) excavate the TB4 sump and A5A plume, and remove the A5A well pad; (9) excavate the D14 sump; and (10) excavate the B11 sump and access road.

Unocal's Beach Project schedule is provided as Exhibit 11 of this report.

4.4 Other Agency Approvals

4.4.1 Central Coast Regional Water Quality Control Board

On April 3, 1998, the Central Coast RWQCB issued Cleanup or Abatement Order 98-38 requiring Unocal to remediate and abandon the Guadalupe oil field. The order was amended on July 13, 1998, and again on November 6, 1998. The RWQCB is taking a phased approach to remediation and abandonment, proceeding with cleanup of the 17 most critical plumes (those known to be introducing contamination to surface waters) while still continuing with investigations into the total extent of the contamination. Cleanup of the first 17 plumes is divided into six phases, and is expected to take five years. Cleanup of the balance of the 90 plumes will occur under future Cleanup or Abatement Orders.

Unocal must obtain a NPDES Construction Storm Water Activity Permit for activities associated with the Guadalupe oil field remediation and abandonment project. This NPDES permit specifies the installation and maintenance of Best Management Practices ("BMPs") to reduce erosion of disturbed soils within and adjacent to construction and staging areas, and is viable for as long as Unocal maintains an up-to-date Storm Water Pollution Plan ("SWPP").

4.4.2 County of San Luis Obispo

In March 1998, the County of San Luis Obispo certified an EIR for Unocal's proposed Guadalupe oil field abandonment and remediation plan. On December 10, 1998, the County approved coastal development permit /development plan ("CDP/DP") D890558D for the Phase I cleanup and abandonment projects identified by the RWQCB in CAO 98-38. A history of the Coastal Commission's appeal of the County coastal permit, and the Commissioner's subsequent withdrawal of that appeal, is provided in Section 4.2.9 of this report.

Some sites and activities at the oil field were not fully considered under CDP/DP D890558D but were later judged to be in Substantial Conformance with the County permit. For example, in April, 1999, the County processed a Substantial Conformity Determination for emergency actions at the M4 site, a site that had been scheduled for full excavation as part of Stage 3 of Phase 1 but since has been delayed due to the discovery of PCBs at the site. Phytoremediation activities at site O13, a project not considered under the EIR, were processed by the County as a Substantial Conformity Determination in June, 1999. Both of these sites are outside the Coastal Commission's permit jurisdiction, but the actions were appealable to the Coastal Commission.

Since issuance of CDP/DP D890558D, there have been new sumps discovered by Unocal and other small project changes not evaluated in the EIR. Therefore, in September 1999, the County's consultant, Arthur D. Little, prepared an addendum to the EIR.

4.4.3 California Department of Fish and Game

In accordance with Fish and Game Code Section 2081, Unocal must apply for and receive an Incidental Take Permit from the CDFG before beginning any work at the Guadalupe oil field that could impact state endangered, threatened or candidate species. The proposed project includes two species listed by the state as "endangered" (California brown pelican, California least tern) and three as "threatened" (La Graciosa thistle, surf thistle, beach spectacle-pod). All of these are "covered" species that have real or potential probability of occurrence at one or more beach project sites, and of being "incidentally taken" during project cleanup and remediation activities.

4.4.4 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers ("ACOE") is issuing a Letter of Permission and Nationwide Permit 38 (Cleanup of Hazardous and Toxic Waste) for the remediation and abandonment activities within the Commission's permit jurisdiction. The Letter of Permission and Nationwide

Permit 38 become effective upon the Coastal Commission's approval of this coastal development permit application.

The ACOE has determined that the Beach Projects may adversely affect the federally-listed California red-legged frog, western snowy plover, tidewater goby, California least tern, California brown pelican, the La Graciosa thistle (proposed for listing) and critical habitat for the western snowy plover. To comply with Section 7 of the federal Endangered Species Act, the ACOE will consult with the U.S. Fish and Wildlife Service ("USFWS"), and use the USFWS Programmatic Biological/Conference Opinion for Coastal Listed Species for the plover (including proposed critical habitat), tern, pelican and goby, and the Programmatic Biological Opinion for the California red-legged frog. The ACOE is also requesting a conference opinion from the USFWS on the La Graciosa thistle.

4.4.5 San Luis Obispo Air Pollution Control District

The County of San Luis Obispo APCD ("SLOAPCD") is the local air agency responsible for implementing federal and state air quality standards for activities at the Guadalupe oil field. For the Past Beach Projects SLOAPCD issued permits for the storage and stockpile of contaminated materials, thermal treatment devices, and large stationary engines. On October 13, 1999, SLOAPCD issued to Unocal Permit to Operate 598-1 for the Phase 1 remediation and abandonment activities identified in RWQCB CAO 98-38.

4.5 COASTAL ACT ISSUES

4.5.1 Environmentally Sensitive Habitat Areas and Marine Resources

Coastal Act § 30230 states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act § 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining*

natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Coastal Act § 30240(a) states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

Coastal Act § 30107.5 defines "environmentally sensitive area" to mean:

…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed and degraded by human activities and development.

All 2,700 acres of the Guadalupe oil field are identified in the County of San Luis Obispo's LCP as Environmentally Sensitive Habitat Area ("ESHA"). The habitat types found within the Commission's permit jurisdiction are diverse and include sandy beach, foredunes, wetlands and transitional habitats, floodplain, river, estuary/lagoon, marsh ponds and woodland.

The EIR concludes that proposed excavation and abandonment activities will have significant, unavoidable adverse impacts to these habitat areas and the sensitive species they support, as described below.

Habitat Types and Sensitive Species

Sandy Beach

The marine habitats at risk from the excavation activities proposed by the past and proposed Beach Projects are the upper sandy beach (the supratidal marine zone) and the mouth of the Santa Maria River, which is tidally influenced by marine waters. Sandy beach habitat is found seaward of the vegetation line.

Invertebrate species that inhabit sandy beaches (predominantly crustaceans and worms) are adapted to the wave action and shifting sands of the intertidal zone and are able to bury themselves quickly or deeply to avoid displacement or permanent burial. The invertebrates that are able to survive the extremes of this habitat attract numerous shorebirds that become most abundant during fall and winter.

The western snowy plover is federally listed as a threatened species and is a California Species of Special Concern (see **Table 2** below and Exhibits 11 and 12). Plovers forage at the upper limits of sandy beach habitat. Up to 130 individual snowy plovers have been observed during the

winter around the Santa Maria River mouth, and up to 40 have been recorded at the Guadalupe oil field beach sites.

California brown pelicans, California least terns (both federally and state listed as endangered), elegant terns (a California Species of Special Concern) and several species of gulls rest and preen upon the shoreline in large flocks and forage in the offshore waters. Along this stretch of the coastline, numbers of California brown pelicans are highest in July, and lowest in late winter and early spring. A sand spit that forms on the north or south side of the Santa Maria River mouth is habitually used by large flocks of brown pelicans, gulls and other shorebirds, including the long-billed curlew (a California Species of Special Concern). Because the location of the river mouth can vary dramatically from year to year, the size, location and configuration of the sand spit, foredunes and river mouth habitats used by sensitive species can change dramatically.

***Foredune*s**

Foredunes are the first vegetated terrestrial communities located above the extreme high water line. Due to the harsh coastal environment, only plants adapted to strong winds, salt spray and burial under moving sand can grow here. Low-growing plants with deep and/or spreading root systems are typical in the foredune habitat. There is often a distinct zonation of vegetation within the foredunes. Growing adjacent to the beach are low-growing, salt-tolerant species that are often called “pioneer” species and influence the initial formation of dune hummocks.

Foredune sites at the oil field are fairly isolated from human activity. Other than oil field personnel, most of the human activity on the site is from beach users such as surfers and fishermen. As such, much of the foredune habitat is not subject to frequent disturbance and is in overall good condition. The foredunes in the project area have large unvegetated areas with scattered low vegetated hummocks. This area has been historically disturbed by the movements of the Santa Maria River in addition to past oil field activities. Sea rocket, a naturalized, non-native species, is often the only plant found on these hummocks although beach bur and yellow sand verbena are occasionally seen.

Away from the immediate shore, as physical conditions become milder, established plants help hold sand in place and higher, more developed dune hummocks form that gradually transition to more stabilized backdunes and dune scrub. These higher, more vegetated foredunes support a variety of low-growing perennial species including the pioneer species noted above. Dune morning glory, beach evening primrose and sea fig are common components of the vegetation in the foredunes, sometimes forming dense mats, especially in areas that have undergone past disturbance such as around roads and pads in the southern half of the oil field. Beach grass is also present in a few localized areas.

Foredunes are the principal habitat of several sensitive plant species listed in **Table 2.** These include two state-listed threatened species (surf thistle and beach spectacle-pod), as well as dunedelion (a California Native Plant Society "watch" species). Several populations of surf-thistle and beach spectacle-pod have been identified at isolated locations on foredunes and open sand areas in the northwest portion of the oil field. Dunedelion is locally common throughout the foredune habitat.

As the distance from the harsh winds and salt spray adjacent to the shoreline increases, frequency of disturbance decreases and the foredunes become more vegetated and stabilized. Increased vegetative cover and roots hold sand in place and promote soil development by increasing the organic matter content of the substrate and its water- and nutrient-holding capacity. As a result, the more stabilized foredunes are able to support occasional subshrub or shrub species such Blochman's leafy daisy (a California Native Plant Society List 1B species). These plants are often found on taller foredune hummocks and are common in the backdune habitats in the Guadalupe oil field.

The sparse vegetation within the foredune habitat offers relatively little cover for wildlife species. Common reptile species in this habitat type include the California horned lizard and silvery legless lizard, both California Species of Special Concern.

The foredunes support a few foraging birds, including the California horned lark, a California Species of Special Concern. In addition, both the western snowy plover and the California least tern nest within this habitat in the project area. The nest sites at Guadalupe range from the flat areas of foredunes to gravelly areas such as abandoned drilling pads or roads within the foredunes. A few nests may also occur farther inland in the less vegetated parts of dunes, although this is generally considered marginal habitat.

California least terns breed in the foredune habitat near the Santa Maria River. Several bird species, including the western snowy plover and the California brown pelican, rest and roost among the protective hillocks of the foredunes during extreme conditions.

Wetlands, Aquatic and Transitional Habitats

Coastal Act § 30121 defines wetlands as:

> *"…lands within the coastal zone which may be covered periodically or permanently with shallow water, including salt marshes, fresh- and brackish-water marshes, swamps, mudflats, and fens."*

Aquatic habitats are open or closed bodies of water that are generally adjacent to or included within wetlands, whereas transitional habitats span the boundary between wetland and upland habitats.

Santa Maria River Floodplain Habitats

The floodplain of the Santa Maria River provides a dynamic mixture of marine, estuarine, riverine and palustrine wetland types, as well as estuarine and riverine aquatic habitats. Migration of the river channel within its present floodplain has increased the diversity of vegetation and wildlife habitats, as former segments of the river channel become cut off and undergo succession.

Several wildlife species use the wide variety of resources provided by the Santa Maria River and associated wetlands. Sensitive species expected to be regular breeders or residents are discussed below under the particular habitat type (*i.e.*, Estuary/Lagoon, Scirpus Marsh/Ponds) in which the species is most likely to occur. However, there are several sensitive species that have been observed in the project area but have not been observed there during their breeding seasons. These sensitive species include fulvous whistling duck, harlequin duck, long-billed curlew, and short-eared owl. Other California species of Special Concern that are expected to be present but whose sensitive rookeries or breeding colonies do not occur in the project area include double-crested cormorant, white-faced ibis, California gull, and elegant tern.

Estuary/Lagoon/River Habitats

Estuary/lagoon/river habitats lie within the active channel of the river and are largely devoid of vegetation due to rapid water motion. Mats of floating green algae may develop during summer and fall when the berm closes the mouth of the river. Additional important sources of food chain support include planktonic algae, plant debris washed down the river by floods, and beached kelp and driftwood washed up the river mouth by high tides.

The river and estuary offer abundant resources to wildlife species. Due to the continuous flux of salt and freshwater within the estuary, species requiring and adapted to both conditions are present in the area. Deeper pools, not heavily influenced by saltwater, provide summer habitat for individuals of transient amphibian species such as the California red-legged frog (federally listed as threatened) and perhaps the western spadefoot toad (a California Species of Special Concern).

Extensive mudflats near the river mouth are used for foraging and resting by large flocks of wintering shorebirds. The abundant fish population attracts diving birds such as the California least tern and California brown pelican. The deeper water at the mouth of the river provides California brown pelicans with good fish populations for foraging, areas for bathing and quiet

places for resting and preening. The river mouth is adjacent to ocean waters, which provide additional foraging habitat. California least terns have historically nested near the river mouth and have increased in numbers in recent years. Post-breeding birds use the lagoon and nearshore waters for foraging and bathing. Western snowy plovers are regularly observed foraging on the shoreline and in the mudflats around the estuary. The river mouth is considered one of the principal western snowy plover wintering sites for the central coast of California. The estuary is also used as a resting and roosting spot for gulls, cormorants and pelicans, and as a stopover for large flocks of migratory birds during the spring and fall.

The species of fish inhabiting or seasonally using the estuary and river include the tidewater goby (federally listed as endangered and a California Species of Special Concern). Gobies appear to be more abundant in the northern end of the lagoon adjacent to the sheetpile wall than in the other areas of the lagoon.

Steelhead trout (federally listed as endangered) historically used the Santa Maria River as a migratory pathway to the Sisquoc and Cuyama rivers, although the latest recorded use was 1943. The native steelhead trout population in this river system is likely extinct. In particularly wet years, however, it is possible that several individual steelhead from other populations could enter the Santa Maria River.

Scirpus Marsh/Ponds

Near the Santa Maria River mouth, established along former reaches of the river channel, occurs a series of ponds with bordering marshes. The *Scirpus*-dominated marshes (which may include southwestern spiny rush and La Graciosa thistle) and ponds associated with the Santa Maria River floodplain provide valuable habitat for several species of amphibians, reptiles and birds. Southwestern pond turtles have been recorded in these deep pools. Two-striped garter snakes (a California Species of Special Concern) forage along the banks and California red-legged frogs breed in this habitat. Because these pools persist throughout the year, they provide valuable summer habitat for these amphibians and other wildlife species as well. Sensitive bird species in this area include Cooper’s hawk, sharp-shinned hawk and northern harrier. This habitat could support nesting tricolored blackbirds, although this nomadic species is not currently known to breed in the project area.

Fish found in the pond immediately adjacent to the river (A Pond) on the north side of the river and connected to it during high water include the tidewater goby. Sampling in 1995 found the goby population to be substantially more abundant in the A Pond than in the lagoon. Two other ponds (B Pond and C Pond) to the north appear to have no regular connection to the river but are periodically connected to the A Pond. No listed or sensitive fish species have been reported for B or C Ponds.

Intermittently Flooded Marsh

Around the margins of the river channels are flats with low-growing marsh vegetation that is essentially salt marsh at the mouth of the river, but becomes brackish or freshwater marsh progressing upstream. All these areas are intermittently flooded winter through spring by river overflows, and the vegetation may be periodically eliminated and undergo succession in the aftermath of heavy floods. Backwater flooding from high tides may also occur near the river mouth. La Graciosa thistle may occur at the margins of this habitat. Site B11 includes this habitat type.

During times of inundation this habitat would provide resources similar to the estuary and lagoon habitats and would support similar wildlife species. The saltmarsh vegetation along the margins of the river and the exposed regions of the marsh attract shorebirds including the long-billed curlew. The less saline conditions upstream provide breeding habitat to amphibian species such as the California red-legged frog.

Willow Scrub/Woodland

Extensive riparian scrub/woodland vegetation occurs along the margins of the Santa Maria River floodplain upstream of tidal influence. The vegetation is relatively "scrubby" due to frequent disturbance by flooding and river-channel migration, cattle grazing and poor growing conditions associated with the marine influences near the mouth of the river. Understory and bordering vegetation consists of intermittently flooded marsh and meadows. Site D14 includes this habitat type.

Sensitive avian species potentially using this habitat include the yellow warbler, short-eared owl, Cooper's hawk, sharp-shinned hawk, and potentially the white-tailed kite, long-eared owl, golden eagle and merlin. The willow habitat also provides valuable habitat for birds migrating through the area. In addition, due to the proximity to the river and the protective cover of the willows, several larger mammal species would use this habitat as a thoroughfare between the backdunes and ocean.

The willow habitat on the project site is neither dense nor extensive. It may support some avian species that require large stands of dense willows (*e.g.*, the yellow-breasted chat, a California Species of Special Concern). However, the willow habitat in the project area is not considered sufficient to support southwestern willow flycatcher or least Bell's vireo, both federally and state listed as endangered, except as very brief transients.

These ESHA habitats and the sensitive species they support are summarized in Table 2 and mapped in Exhibit 11. Detailed sensitive species' descriptions are in Exhibit 12.

Table 2. Sensitive Species Found Within the Project Area

FEDERAL- AND STATE-LISTED SPECIES			
Common Name	**Common ESHA Type**	**Listing Status**	**CCC Sites**
Plants			
La Graciosa thistle	River floodplain *Scirpus* marsh/pond Intermittently flooded marsh Wetlands	PE/T/CNPS 1B	A2A North (Pond B), A Road, B11, D14
Surf thistle *Cirsium rhothophilum*	Foredunes	---/T/CNPS 1B	5X (A Road widening)
Beach spectacle-pod *Dithyrea maritima*	Foredunes	---/T/CNPS 1B	TB4, A5A, 5X (A Road widening)
Wildlife			
California red-legged frog *Rana aurora draytonii*	Estuary/lagoon/river *Scirpus* marsh/pond Intermittently flooded marsh	T/CSC	5X, A2A North (Pond B wetland), A Road, A1/2X (2X Sump), B11, D14, TB4
Tidewater goby *Eucyclogobius newberryi*	Estuary/lagoon/river *Scirpus* marsh/pond	E/CSC	5X, A2A North (Pond B), LeRoy 3, Santa Maria River estuary and lagoon (potential)
Steelhead trout *Oncorhynchus mykiss*	Estuary/lagoon/river	E/CSC	5X, LeRoy 3, Lower Santa Maria River (potential)
California brown pelican *Pelecanus occidentalis californicus*	Sandy beach Foredunes Estuary/lagoon/river	E/E	5X, LeRoy 6, Santa Maria River estuary and lagoon; forage in ocean just beyond breakers.
California least tern *Sterna antillarum browni*	Sandy beach Foredunes Estuary/lagoon/river	E/E	5X, LeRoy 3, LeRoy 6, A2A North, A Road, A1/2X (2X Sump), Santa Maria River mouth
Western snowy plover *Charadrius alexandrinus*	Sandy beach Foredunes Estuary/lagoon/river	T/CSC	5 X, A2A North, A Road, A5A, LeRoy 3, LeRoy 6, A1/2 X (2X Sump), TB4, Santa Maria River mouth

Notes to Table 2:

Federal Status (determined by U.S. Fish and Wildlife Service):

E Endangered. In danger of extinction throughout all or a significant portion of its range.
T Threatened. Likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
PE Proposed for listing as Endangered.
C Candidate for listing as Endangered or Threatened.

State Status (determined by the California Department of Fish and Game):

E State listed as Endangered
T State listed as Threatened
CSC California Species of Special Concern
FP Fully Protected or "Special Animal"

California Native Plant Society (CNPS) List:

1B Plants considered rare or endangered in California and elsewhere
4 Plats of limited distribution – a watch list

OTHER SENSITIVE SPECIES			
Common Name	**Common ESHA Type**	**Listing Status**	**CCC Sites**
Plants			
Blochman's leafy daisy	Foredunes	---/---/CNPS 1B	5X, A5A, D14, B11, A2A North, TB4
Suffrutescent wallflower *Erysimum insulare suffrutescens*	Dune scrub River floodplain	---/---/CNPS 4	D14
Southwestern spiny rush *Juncus acutus leopoldii*	Estuary/lagoon/river *Scirpus* marsh/pond Intermittently flooded marsh	---/---/CNPS 4	Along Santa Maria River
Dunedelion *Malacothrix incana*	Foredunes	---/---/CNPS 4	5X, A5A, A2A North, TB4
Wildlife			
Western spadefoot toad *Scaphiopus hammondii*	Estuary/lagoon/river	---/CSC	TB4, Santa Maria River
Southwestern pond turtle *Clemmys marmorata pallida*	*Scirpus* marsh/pond	---/CSC	A2A North, B11, D14
California horned lizard *Phrynosoma coronatum frontale*	Foredunes	---/CSC	5X, A2A North
Silvery legless lizard *Anniella pulchra pulchra*	Foredunes	---/CSC	5X
Two-striped garter snake *Thamnophis hammondii*	*Scirpus* marsh/pond	---/CSC	A2A North (Pond B), B11, D14
Tricolored blackbird *Agelaius tricolor*	*Scirpus* marsh/pond	---/CSC	A2A North (Pond B), B11
Fulvous whistling duck *Dendrosygna bicolor*	*Scirpus* marsh/pond	---/CSC	Potential A2A North (Pond B), B11
Harlequin duck *Histrionicus histrionicus*	*Scirpus* marsh/pond	---/CSC	Potential A2A North (Pond B), B11
Double-crested cormorant *Phalacrocorax auritus*	Estuary/lagoon/river	---/CSC	Potential Santa Maria River
White-faced ibis *Plegadis chihi*	River floodplain	---/CSC	Potential Santa Maria River
White-tailed kite *Elanus leucurus*	Willow scrub/woodland	---/FP	D14
Short-eared owl *Asio flammeus*	River floodplain	---/CSC	D14, Santa Maria River

OTHER SENSITIVE SPECIES			
Common Name	**Common ESHA Type**	**Listing Status**	**CCC Sites**
Long-eared owl *Asio otus*	Willow scrub/woodland	---/CSC	D14
Northern harrier *Circus cyaneus*	*Scirpus* marsh/pond	---/CSC	Potential all sites
Cooper's hawk *Accipiter cooperii*	*Scirpus* marsh/pond Willow scrib/woodland	---/CSC	A2A North, B11, D14
Sharp-shinned hawk *Accipiter striatus*	*Scirpus* marsh/pond Willow scrub/woodland	---/CSC	A2A North, B11, D14
Golden eagle *Aquila chrysaetos*	Willow scrub/woodland	---/CSC	Potential all sites
Merlin *Falco columbarius*	Willow scrub/woodland	---/CSC	Potential all sites
Long-billed curlew *Numerius americanus*	Sandy beach Estuary/lagoon/river Intermittently flooded marsh	---/CSC	5X, Santa Maria River
California gull *Larus californicus*	River floodplain	---/CSC	Santa Maria River
Elegant tern *Sterna elegans*	Sandy beach River floodplain	---/CSC	5X, Santa Maria River mouth.
California horned lark *Eremophila alpestri actia*	Foredunes	---/CSC	5X, roads
Yellow warbler *Dendroica petechia*	Willow scrub/woodland	---/CSC	D14
Yellow-breasted chat *Icteria virens*	Willow scrub/woodland	---/CSC	D14

Past Beach Project Impacts

5X, LeRoy 2 and A2A Area Excavations

Most of the 1994 5X excavation occurred on the sandy beach. The presence of floating diluent inside the large 5X cofferdam, as well as other construction-related activities, posed a potential threat to various bird species that were observed flying over and periodically seen floating and diving into the open water habitat within the cofferdam. Numerous bird tracks were frequently observed in close proximity to, but outside, the cofferdam. Unocal used several methods of

hazing to scare birds away from the area, including tying reflecting mylar strips to ropes spanning the pit, positioning artificial predators around the site, and firing noise-producing guns throughout the day.

Although most of the remedial activities were located in the sandy beach habitat, construction activities also disturbed foredune habitat (estimated to be less than four acres) resulting in a loss of habitat for sensitive plant and wildlife species. The foredune habitat at the 5X site and access road was valuable California snowy plover breeding and resting habitat. Unocal has not yet revegetated this area because it is going to be disturbed again during excavation of the remaining 5X plume. The establishment of suitable vegetation is required for this area to provide resources similar to those available prior to disturbance.

The EIR determined that the construction-related support structures, such as fences, signs, lights and viewing towers temporarily impacted the site. Impacts to wave runup, beach erosion, and sand deposition patterns also occurred due to the construction of the cofferdam within the excavation area. The removal of the cofferdam wall at the end of construction allowed the natural beach processes to resume, making this a short-term impact. The construction of the boardwalk for pedestrian access across the foredunes helped to mitigate dune erosion. Shortages of clean and thermally treated sand prevented complete backfilling of the excavation. More sand was excavated than was put back, so there was a net loss of sandy beach habitat from the littoral zone. The EIR concluded this was a short-term adverse impact since later storm deposition of sand returned the beach to its natural winter profile once the cofferdam was removed.

Because 1994 5X excavation operations occurred during winter, impacts to tidewater goby from the vibrations used to set the HDPE wall panels, or by the additional sand material washing from the beach stockpile areas and into the littoral areas, were not observed.

The LeRoy 2 sump site was located in foredune habitat north of the Santa Maria River and south of the 5X site. This area had undergone previous disturbance from the migration of the Santa Maria River as well as oil field activities. Prior to the excavation and cleanup, the sump area and access route had been covered by wind-blown sand and naturally revegetated, predominantly by pioneer dune species such as sea rocket, beach bur and yellow sand verbena on low hummocks, with areas of open sand in between. The primary wildlife species of concern were the tidewater gobies potentially using the Santa Maria River lagoon areas and the California snowy plovers using the sandy beach and foredune habitats for resting and breeding.

Emergency excavation of the sump and removal of sand along the access route resulted in the removal or disturbance of approximately one-half acre of foredune vegetation, including a cluster of dunedelion (a sensitive plant species). Since the sump excavation was carried out during the winter months, snowy plovers were not impacted.

The A2A South plume and sumps were located in foredune habitat in the southwest corner of the oil field, just inland of the 5X site and near wetland areas. The potential to impact foredune species (particularly California least terns and western snowy plovers) was mitigated to a certain extent by the timing of the project, which avoided the breeding and nesting seasons for these species. California red-legged frogs, in contrast, were present during the winter season in which the activities occurred. Approximately five of the geobags placed along the north bank of the Santa Maria River split, spilling the sand in the bags into the river.

The Commission is requiring in **Special Condition 22** that for each area disturbed as a result of remediation activities authorized by emergency permits E-94-12-G, E-95-18-G, E-97-03-G and E-98-09-G, Unocal, submit to the Executive Director for approval a site-specific Habitat Restoration, Revegetation and Monitoring Plan as described in **Special Condition 9** within 60 days of issuance of this permit. These site-specific plans may exclude those pre-disturbance requirements that cannot be complied with because of the emergency nature of the remediation activities.

Special Condition 23 requires Unocal to submit to the Executive Director within 30 days of issuance of this permit an Interim Site Stabilization Plan for all foredune and dune areas adversely affected by remediation activities carried out under the authority of the four emergency permits. The plan is to include: (a) methods for substrate stabilization and erosion control; (b) methods for controlling the influx and establishment of undesirable plant species; and (c) a monitoring program. This Interim Site Stabilization Plan is to be implemented until the site-specific Habitat Restoration, Revegetation and Monitoring Plan, as required by **Special Condition 22,** is approved by the Executive Director and implemented by Unocal.

5X Sheetpile Wall

Installation of the 5X sheetpile wall also impacted ESHA and sensitive species. Construction noise and increased human activity during the installation of the sheetpile wall may have deterred wildlife from inhabiting the beach in the area of activity. However, timing of construction activities (November through February) avoided the critical breeding and nesting seasons for western snowy plovers and California least terns, and there was easily accessible sandy beach habitat in the area of the Santa Maria river for foraging and other wildlife use. Consequently, the construction of the sheetpile wall did not significantly impact sensitive wildlife species common in the sandy beach habitats. Lights and construction noises at night created disturbances to wildlife using the sandy beach habitat, possibly affecting snowy plover foraging.

Installation of the 5X sheetpile wall directly impacted an estimated three acres of foredune habitat that was in the process of recovering from the 1994 5X plume excavation and HDPE wall installation disturbance, and one acre of previously undisturbed, established foredunes.

Approximately 2,800 individuals or groups of dunedelion in low dune hummocks and approximately 25 individual plants of Blochman's leafy daisy within one-half acre of the construction footprint were removed during installation of the southeast section of the Phase 2 sheetpile wall. Loss of vegetation occurred from grading and excavation, vehicles and human access (crushing of plants). In addition, since the excavated dunes in this area were fairly high, there were indirect impacts associated with erosion of newly exposed sand from wind, rain, or gravity.

Also, wherever the Santa Maria River flows along the beach next to the sheetpile wall, the southeast section of the wall may cause an eddying effect with consequent erosion and loss of foredune habitat.

The Commission is thus requiring in **Special Condition 41** that the 5X sheetpile wall be removed at the earliest opportunity following excavation of the 5X plume. Removal of the sheetpile wall will cause impacts to the active beach due to use of heavy equipment and noise. **Special Condition 41** further requires that if the river or lagoon is present in front of the existing 5X sheetpile wall at the time of its removal, Unocal will schedule removal for the period November through January to avoid tidewater goby nesting. This will also avoid the breeding and nesting seasons for California least terns and western snowy plovers. Unocal must also contour the land on the west side of the site to minimize the probability of a cave-in into the lagoon or river after the sheetpile and HDPE walls are removed.

Proposed Beach Project Impacts

Plume, Sump and Oil Layer Excavations

The EIR identifies that the proposed Beach Projects will create significant short-term disturbance and potentially unmitigable long-term impacts to the sensitive habitats and species of the Guadalupe oil field. Several sites within the project area include more than one ESHA habitat type and/or sensitive species. Some federally or state-listed species (western snowy plover, California least tern, California red-legged frog, La Graciosa thistle) are particularly vulnerable because they have critical habitat within or in close proximity to excavation sites that will be heavily disturbed. **Special Conditions 13-15**, as detailed below, are specifically directed at minimizing or avoiding impact to these species.

Site-Specific Impacts

There will be potential disturbance to California brown pelicans using the sandy beach or foredune habitat at the 5X and LeRoy 3 sites for resting. Western snowy plovers breeding or foraging at 5X, A2A, A5A sump, LeRoy 3 and LeRoy 6 could be disturbed, as well as California least terns foraging in the 5X, A2A, A5A Sump and LeRoy 3 sites. Loss of individual surf

thistle, Blochman's leafy daisy and/or dunedelion may also occur as a result of foredune habitat disturbance at the 5X, A5A and LeRoy 6 sites. These disturbances may cause changes of breeding or foraging behavior and affect breeding success of local tern and plover populations, cause injury or death of individual sensitive plants and birds, or lead to loss of sandy beach and foredune habitat.

The proximity of the 5X project to the marsh ponds that provide breeding habitat for California red-legged frogs may result in injury or mortality to the frogs (the apex of the 5X sheetpile is within 200 feet of the A2A Pond B wetland area). The A Road widening and turnout construction occurs in foredune areas east of an existing road bordering the 5X East, A2A, TB4 and A5A sites; these road widening activities potentially impact the same types of habitats and sensitive species that would also be encountered during excavations at these four sites. In addition, the TB4 sump area is in close proximity to two wetlands and existing beach spectacle-pod plants. It provides potential habitat for western spadefoot toad. The B11 Sump encroaches into the Pond B wetland and will result in disturbance to the wetland. Siltation and water in the excavation could impact the wetland. There is a high likelihood that California red-legged frogs, two-striped garter snakes and/or southwestern pond turtles will be present in and around the adjacent pond. La Graciosa thistle is present in wetland areas near the B11 sump. Tricolored blackbird, fulvous whistling duck, harlequin duck, Cooper's hawk, and sharp-shinned hawk are also potentially present and impacted during work at B11. La Graciosa thistles are also within the D14 construction footprint, and a California red-legged frog was recently observed at D14. D14, as part of the Santa Maria River floodplain, is bordered by willow scrub/woodland habitat, which provides potential foraging and resting habitat for the California horned lark, yellow warbler, yellow-breasted chat, white-tailed kite, sharp-shinned hawk, Cooper's hawk, short-eared owl, and long-eared owl.

Excavation activities may result in the loss of individual tidewater gobies and/or their breeding habitat. Removal of the sheetpile wall at the west side of the 5X site and excavation of LeRoy 3 and 5X access road oil layers could affect tidewater gobies and their habitat through vibration and collapse of burrows or through filling of the habitat. If migrating steelhead trout are present at 5X due to changes in flow of the Santa Maria River, they could be affected through interference with movement by removal of the sheetpile wall at the west side of the 5X site.

Partial or full failure of site restoration efforts will result in long-term loss of critical habitat for listed and other sensitive species. Several of these plant and wildlife species have experienced severe limitations to population range and numbers, and use the Guadalupe oil field as critical remaining habitat.

Identification of ESHA Habitats and Species

To assess the potential ESHA habitats and sensitive species that will be disturbed, injured, removed or eliminated by remediation and abandonment activities, the Coastal Commission is requiring in **Special Condition 9** that prior to ground disturbance at each project site, Unocal submit for approval and written sign-off by the Executive Director a site-specific Habitat Restoration, Revegetation and Monitoring Plan. Each plan is to include: (a) a complete pre-disturbance biological survey; (b) geographic limits of the disturbance and geographic boundary of restoration and revegetation activities, including other known disturbances (*e.g*., grazing); (c) construction monitoring measures (pre-construction topographic surveys, soil compaction, grading and contouring specifications, protocols to quantitatively determine whether physical restoration has resulted in a physical habitat built-to-plan); (d) dune stabilization measures; (e) description of the habitat and revegetation goals; and (f) performance monitoring for up to 10 years following the end of bioremediation activities.

The EIR identifies that the excavation of certain plumes and sumps will impact wetlands at sites A2A North (Pond B wetland), A Road, B11, D14 and TB4.

The Commission is therefore requiring in **Special Condition 19** that wherever ground-disturbing activities occur, a preliminary wetland assessment shall be made by a qualified wetland delineator in cooperation with the independent Onsite Environmental Coordinator ("OEC"). If, in the opinion of the OEC, there is evidence of frequent soil inundation or saturation, hydric soils, or a prevalence of hydrophytic vegetation, a formal wetland delineation shall be conducted by a qualified delineator approved by the Executive Director and the County. The delineation shall be conducted in cooperation with the independent OEC and will use the criteria accepted by the California Department of Fish and Game and the Coastal Commission. If wetlands are present in areas of potential impact, their boundaries shall be accurately determined and mapped. A report will be submitted to the Executive Director, the County Department of Planning and Building and other appropriate agencies prior to the initiation of site characterization, oil spill remediation, oil field abandonment, infrastructure installation, or infrastructure removal activities. Unocal shall not commence any ground-disturbing activity at any area of potential impact until receiving written sign-off on the report for that area from the Executive Director.

Habitat and Species Avoidance Measures

The Commission is imposing a number of conditions of approval that require Unocal to take all feasible steps to avoid or minimize impacts to sensitive species and their habitats.

Special Condition 10 requires Unocal in part to: (a) limit the duration of time each site is disturbed and the total area of disturbance; (b) maintain a current database of listed and other sensitive species, including seasonal closure information; (c) mark locations of sensitive species;

(d) confine off-road vehicular use, including ATVs, and not commence that use for each site until receiving written sign-off from the Executive Director; (e) periodically survey access corridors; (f) develop an exclusion plan prior to disturbance at each site, and not commence ground-disturbing activity at any site until receiving written sign-off on the exclusion plan for that site; (g) complete oil field abandonment activities prior to or concurrent with remediation; (h) limit traffic and lighting; (i) where access to sites must be through native habitats, a qualified biologist must determine the most suitable access route and mark it, and Unocal shall not enter any native habitats until receiving written-sign-off on that access route from the Executive Director; (j) conduct training of field personnel; and (k) enable independent Onsite Environmental Coordinator to be present at any and all times ground-disturbing activities are occurring.

Special Condition 11 requires, in part, that if sensitive species are found at any site, Unocal will: (a) limit construction areas, access routes and construction timing to avoid impacts to species; (b) develop and implement a salvage, propagation and replanting program for impacted sensitive plant species; (c) develop and implement a capture and relocation program for impacted sensitive animal species; and (d) develop separate mitigation plans that compensate for direct impacts (mortality, decreased fitness, loss of habitat) and temporal losses to sensitive species.

Special Condition 12 requires that all project activities on or near the beach and foredunes be scheduled to avoid western snowy plover and California least tern habitat during their breeding seasons (March 1 through September 15) to the maximum extent feasible as determined by the USFWS.

Special Condition 13 requires that an independent qualified biologist with western snowy plover and California least tern experience, approved by the Executive Director, the County, and other resource agencies, visit the site throughout the construction, site characterization, oil spill remediation, oil field abandonment, infrastructure installation and infrastructure removal phases. The biologist is to ensure that all practicable measures are being employed to avoid incidental disturbance of sensitive species and sensitive species habitats.

Special Condition 14 in part requires that a qualified biologist approved by the Executive Director, other resource agencies and the County monitor western snowy plover and California least tern populations to determine breeding and fledgling success during project activities.

Special Condition 15 requires, in part, that at sites where California red-legged frog (CRLF) habitat is present: (a) no site characterization, excavation, infrastructure removal or remediation activities shall occur within 200 feet of CRLF breeding habitat from January 1 to September 15, or as determined by the USFWS; (b) pre-project CRLF surveys shall be conducted by an independent qualified biologist under the direction of the OEC and throughout the proposed area of disturbance and within suitable habitat up to 500 feet away from the remediation area; (c)

project sites within 500 feet of CRLF habitat will be fenced; (d) qualified biologists approved by the USFWS will capture and relocate CRLFs to suitable, pre-determined sites outside the construction zone; (e) all non-native predators to CRLFs shall be destroyed; and (f) nighttime surveys for CRLF shall be conducted at least twice per week or as directed by USFWS for the duration of construction activities in the CRLF vicinity.

Special Condition 19 requires Unocal to make every reasonable effort to avoid impacts to wetlands. If wetlands are present in areas of potential impact, their boundaries shall be accurately determined and mapped and a report submitted to the Executive Director, the County and other appropriate resource agencies prior to the initiation of site characterization, oil spill remediation, oil field abandonment, infrastructure installation, or infrastructure removal activities.

To minimize the potential "take" of California red-legged frogs, **Special Condition 21** requires during November-March of each year, Unocal to limit the use of the "loop" road (which straddles Marsh Ponds A and B) to foot traffic and emergency vehicles only, unless otherwise authorized by the USFWS. From March-September, traffic is limited to emergency vehicles only, unless otherwise authorized by the USFWS.

To minimize the possibility of birds entering the open diluent ponds in the excavation pits, **Special Condition 27** requires Unocal to submit to the Executive Director and written sign-off for approval a revised Oil Spill Contingency Plan that includes, in part, a Wildlife Exclusion Plan.

Special Condition 32 further requires the Executive Director to approve, prior to sheetpile installation at each excavation site, sheetpile locations to ensure that site disturbance is minimized.

Restoration of ESHA Habitats and Species

Notwithstanding Unocal's efforts to minimize adverse impacts to the project area's wildlife and sensitive habitats, as required by the above-referenced conditions of approval, remediation and abandonment activities will cause significant, adverse unavoidable effects. The Commission is thus requiring Unocal to implement a comprehensive revegetation and restoration effort at each disturbed site.

Special Condition 9 requires, prior to ground disturbance at each project site, that Unocal submit for Executive Director approval a written sign-off a site-specific **Habitat Restoration, Revegetation and Monitoring Plan**. Included in each plan shall be: (a) a pre-disturbance biological survey; (b) results of representative soil borings from wetlands where ever delineated wetlands are present; (c) geographic limits of disturbance and geographic boundary of restoration and revegetation activities; (d) summary of other known disturbances; (e) specifications for soil

compaction, grading, contouring, backfill and sheetpile removal, and protocols to determine whether physical habitat has been built-to-plan; (f) dune stabilization measures; (g) description of the habitat and revegetation goals; (h) erosion control and ecological performance criteria; and (i) funding of an independent biological performance monitor.

Special Condition 14 requires in part that a qualified biologist approved by the Executive Director, resource agencies and the County monitor western snowy plover and California least tern populations to determine breeding and fledgling success after project activities.

Special Condition 16 requires that, for areas in which vegetation and soil are to be removed, Unocal shall salvage and replace topsoil that is reasonably weed-free, and in consultation with the resource agencies and revegetation specialists, and for approval and written sign-off by the Executive Director, develop a plan for topsoil removal that will maximize all feasible salvage of the seed bank.

Special Condition 18 requires Unocal to provide post-construction aerial photographs for each site 3 years following the completion of revegetation. A report that includes both pre-construction and post-construction aerial photographs and a map with overlays containing vegetation polygons from the two aerial photographs for each site shall be provided to the Executive Director and the County.

Special Condition 20 requires that if any project activities could result in unavoidable impacts to wetlands, Unocal shall submit a **Wetland Restoration and Mitigation Plan** in the form of an amendment to this permit. The plan must be approved by the Coastal Commission prior to initiation of project activities that could result in unavoidable impacts to wetlands. This plan shall include, in part, the following elements: (a) the ratio of the area of created or restored wetlands to the area of impacted wetlands; (b) post-treatment ground elevations that will provide a range of microhabitats that can accommodate the requirements of sensitive plant species; (c) a plan for monitoring dissolved-phase diluent to ensure detection of exposures approaching potential damage thresholds; and (d) inclusion of the restored or created wetland and adjacent upland and transitional habitats in the **Habitat Restoration, Revegetation and Monitoring Plan** described in **Special Condition 9**. Unocal proposes to use the site-wide ecological risk assessment to help determine if wetland restoration is practical for the B11 and D14 areas.

Special Condition 37 requires sediment grain-size analysis of the remove and replacement material for each excavation site, recorded and submitted to the Executive Director for review and approval. No filling of an excavated area shall occur until the grain-size compatibility between the removed sediment and the replacement sediment is approved.

Special Condition 41 requires that the 5X sheetpile wall be removed at the earliest opportunity following excavation of the 5X plume, and **Special Condition 42** requires the removal of all geobags at the earliest opportunity following excavation of all plumes and sumps.

Other Project-Related Activities

Pipeline removal will require access along the length of the Category B and C lines in order to install drainage taps and make cuts. This has the potential to disturb vegetated surfaces and sensitive species. Unocal proposes, wherever possible, to establish access corridors in already disturbed areas to minimize impact on the habitat. Unocal also proposes to overlap disturbance corridors where multiple, parallel pipelines occur.

Unocal anticipates that placement of new power poles and concrete transformer pads will be in bare sand areas or areas already impacted by 5X emergency permit actions or existing infrastructure placements. Additional impacts to surface vegetation are expected to be minimal.

A contingency plan to use 60-100 geobags will be activated if the Santa Maria River appears to pose a threat to the 5X site. If any geobag falls into the river, it has the potential to smother tidewater gobies. **Special Condition 42** requires Unocal to completely remove all geobags at the earliest opportunity following excavation of all plumes and sumps authorized by this permit.

To conduct these project-related activities, Unocal must implement all relevant habitat and sensitive species avoidance, minimization and restoration conditions of approval, as discussed in detail above.

Offer to Dedicate Shoreline Habitat Protection/Open Space Easement

In addition to the aforementioned habitat and sensitive species avoidance, minimization and restoration conditions of approval, Unocal has agreed to re-offer to dedicated a habitat protection easement.

As part of a 1980 coastal development permit (CDP 40-24) to expand oil production operations at Guadalupe, the Coastal Commission required Unocal to dedicate two easements over approximately 300 acres of sand dune habitat between the Santa Maria River and the Mobil Coast Preserve to the north. The first easement is for public access and would occupy a band of 80 acres between the mean high tide line and the area that was once the first row of oil wells (The public access easement is discussed in Section 4.5.6 of this report). The second easement is for habitat protection and preservation of open space that would occupy 300 acres, including the north-to-south public access strip along the beach.

On June 11, 1980, Unocal recorded Offer to Dedicate ("OTD") 23795 for an easement providing habitat protection/open space over approximately 300 acres of shoreline dune habitat (Exhibit 15). A portion of the 300 acres will be disturbed as a result of proposed remediation operations The OTD is irrevocable for a period of 21 years running from the date of recordation. Although the Coastal Conservancy has expressed interest in accepting the grant of easement, it and other potential recipients have not done so due to the petroleum contamination at the site. The OTD is to expire June 11, 2001.

The Commission is concerned that the OTD may expire before any party accepts them. Unocal has agreed to re-offer for dedication OTD 23795 before the current OTD expires. **Special Condition 43** requires that the OTD be effective for at least 25 years after the RWQCB issues a "closure" letter[9] for the site. In addition, Unocal must issue a fully executed Indemnity Agreement in a form and content as set forth in Exhibit 16 to any entity approved by the Executive Director to accept the existing or new replacement OTD. The Indemnity Agreement shall indemnify the party accepting the OTD from and against any and all liability, loss, costs, damages, claims, liens and expenses which directly or indirectly arise out of or are in any way associated with any past, present and future operations or activities conducted at the Guadalupe oil field by Unocal or any person acting as Unocal's representative or contractor.

Site-wide Easement Required by County Coastal Permit

In addition, to mitigate 15 significant unavoidable "Class I" impacts (as identified in the EIR), the County is requiring in its coastal permit for the overall Phase I cleanup and abandonment project (Exhibit F, Condition 110) that if Unocal acquires ownership of the oil field (Unocal is currently trying to purchase the oil field from the Leroy Trusts), it shall irrevocably offer to dedicate to a public agency or private non-profit association a site-wide open space, habitat protection, and public access easement. The purpose of the site-wide easement is for visual resource protection, habitat protection, and managed public access to the Guadalupe dunes and shoreline. The easement is to be located over the entire oil field, which is approximately 2,700 acres. The offer is to provide that no development, except for habitat restoration, remediation activities, abandonment activities and other support facilities for habitat restoration and managed public access, shall occur within the easement area.

In the alternative, Unocal may grant fee title to the entire oil field to a public agency or private non-profit (approved by the Executive Director and the County Planning Director) for the purposes described above.

Unocal may not succeed in acquiring ownership of the oil field, however. In this event, Unocal must acquire or cause the acquisition of irrevocable protective easements over a combination of

[9] A "closure letter" is issued to the responsible party by the RWQCB after the RWQCB has determined that the site is "clean" and no further remediation work or monitoring is needed.

foredune, backdune, and/or wetland habitats in the Guadalupe-Nipomo Dunes Complex that are functional biological equivalents of the oil field site in its natural condition.

If Unocal demonstrates to the satisfaction of the County Board of Supervisors and the Coastal Commission that implementation of one of these three options is infeasible, Unocal shall pay to the County by June 30, 2001 a mitigation fee in an amount equal to the monetary value of such open space, habitat protection, and managed public access easement. If the value of such easement is not agreed upon by the Executive Director, County Planning Director and Unocal, then it shall be appraised by an appraiser chosen by the San Luis Obispo Superior Court. The funds are to be used by the County within 10 years for the purchase and/or habitat restoration of property in the Guadalupe-Nipomo Dunes Complex.

Conclusion

The project, as strictly conditioned, includes all feasible measures to minimize impacts to environmentally sensitive habitats and species. Nevertheless, the extensive nature of the excavations will cause disturbance and/or outright elimination of habitat, and pose the risk of injury or mortality to sensitive species. In addition to the significant short-term disturbance and potentially unmitigable long-term impacts created by the proposed excavations, there is no certainty that restoration efforts, particularly in exceedingly sensitive wetland habitats, will succeed.

The Commission therefore finds the project inconsistent with Coastal Act §§ 30230, 30231 and 30240(a) which require that marine resources, environmentally sensitive habitat areas and species of special biological significance be protected. Nevertheless, the project can be found consistent with the Coastal Act under the "conflict resolution" section of the Coastal Act for the reasons discussed in Section 4.5.10 of this report.

4.5.2 Water Quality

Coastal Act § 30230 states in part:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters….*

Coastal Act § 30231 states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through,*

among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Potential Water Quality Impacts

CAO 98-38, issued by the Central Coast Regional Water Quality Control Board ("RWQCB") in April 1998, directs Unocal to remove petroleum hydrocarbon contamination from soil and ground water at the oil field (*i.e.*, the Phase 1 cleanup projects). However, the EIR identifies that the cleanup project itself could adversely affect surface and ground water quality at the oil field site.

The Central Coast Water Quality Control Plan (1994) requires that: (a) surface and ground waters be maintained free of toxic substances in concentrations toxic to human, plant, animal, or aquatic life; (b) surface and ground waters not contain taste or odor-producing substances that adversely impact beneficial uses of water or create a nuisance; (c) surface water not contain suspended material, sediment, or settleable material in concentrations that cause nuisance or adversely impact the beneficial uses of water; and (d) surface waters be free of turbidity that causes a nuisance or adversely impacts the beneficial uses of ground water — turbidity is not to exceed 20% of natural background levels or impacts will be considered significant.

The EIR states that conducting cleanup activities could increase turbidity in surface waters, or release sediment, suspended material, or settleable material into surface waters, thereby reducing water quality. Specific activities that could increase turbidity include grading, installation and removal of sheetpile, excavation activities, backfilling and operation of equipment near the water's edge. Project activities may also result in inadvertent spills of contaminated extraction water, petroleum products, motor fuels, lubricants, coolants, hydraulic fluids, etc. into the dunes, beach, or river that could directly impact water quality. A spill could re-contaminate a remediated area or affect previously uncontaminated areas. These spills, although relatively small, are common at construction sites.

The Coastal Commission is therefore imposing several conditions that address surface water quality. **Special Condition 24** requires Unocal to obtain a National Pollutant Discharge Elimination System ("NPDES") Construction Storm Water Activity Permit from the RWQCB. The permit's pollution prevention plan must specify best management practices ("BMP") to reduce erosion of disturbed soils within and adjacent to construction and staging areas.

Special Condition 8 requires Unocal, prior to ground disturbance at each project site, to submit for Executive Director approval soil stabilization and erosion control procedures. Erosion control procedures are to include temporary soil stabilization methods to prevent the loss or movement of soil from clean or contaminated soil stockpiles.

Special Condition 26 requires that equipment and materials, particularly materials that can cause turbidity and sedimentation, be stored inside bermed areas where surface runoff can be controlled and kept away from surface water.

Special Condition 25 further requires Unocal to weekly monitor surface water bodies for increased water turbidity. If there is a visible turbidity plume emanating from the construction site, or if there is a measurable relative increase in turbidity of 20 percent or more near the construction site, activities will be halted until additional remedial actions are approved by the Executive Director.

Unocal's project-specific oil spill response plan states that all equipment maintenance, including refueling and lubrication, occur at designated sites and at least 100 feet from the nearest water resource. There will be no vehicle refueling on the beach. Washing and cleaning of construction and remedial equipment will occur where wastewater and materials can be contained for subsequent removal. Secondary containment for parked construction equipment and fuel storage vessels is required to contain any possible leaking products, and proper containment techniques are to be used when cutting or draining pipelines. All purge water and waste oil will be disposed of at a NPDES-permitted facility. All storage vessels used for temporary containment of contaminated ground water or recovered product are to have an adequate containment structure in place so that potentially spilled materials do no impact adjacent waters.

A failure of a sheetpile wall could cause contaminated ground water or separate-phase diluent to be transported into previously uncontaminated areas or cause re-contamination of a remediated area. At 5X, impacts to surface water could occur if the sheetpile walls failed and contaminants were released into the Santa Maria River or the ocean. Sheetpile wall failures at sites TB4, A2A North, A5A, and B11 can result in discharge of contaminated ground water or diluent to wetland areas. **Special Conditions 33** and **34** require Unocal to design the sheetpile walls to withstand the appropriate local storm conditions and to submit those plans for Executive Director approval.

Special Condition 28 requires Unocal, during the 5X excavation, to collect weekly samples of ocean water, interstitial water and sediments at the point of ground water discharge at low tide on the sandy beach and to analyze them for hydrocarbon concentrations per the direction of CDFG/OSPR. The sample results are to be submitted to CDFG/OSPR within 24 hours of sample collection. If CDFG/OSPR determines that 5X excavation activities are causing, or have a high likelihood of causing, marine discharges of hydrocarbons, all activities are to cease until the Executive Director and other affected agencies determine how the activities can continue without causing discharges.

The EIR further identifies that use of sheetpile walls may also create ground water mounding upgradient of the walls. This would potentially divert the direction of ground water flow and push contaminated ground water into uncontaminated areas or increase a downward vertical gradient. The B11 site poses the greatest concern in this latter regard, and for excavation at this site Unocal proposes conducting the excavation during late summer when water in the nearby marsh/pond is at its lowest seasonal level, and using a combination of a water bladder, geobags, and/or harbor boom to keep water in the excavation separated from the marsh pond.

Conclusion

The Coastal Commission therefore finds that impacts to water quality from the proposed project due to turbidity will be mitigated to a level of insignificance upon application of the requirements of the above-described conditions of approval. The Commission further finds that early detection of hydrocarbons entering surface waters, as required in **Special Condition 28**, will ensure that coastal water quality is maintained. The Commission thus finds that the project, as strictly conditioned, can and will be carried out in manner that will maintain the biological quality of coastal waters and is therefore consistent with Coastal Act §§ 30230 and 30231.

4.5.3 Filling and Dredging of Coastal Waters

Coastal Act § 30108.2 defines "fill" as "*earth or any other substance or material, including pilings placed for purposes of erecting structures thereon, placed in a submerged area*."

Placement of temporary geobags along and in the Santa Maria River and on the beach below the mean high tide line, and installation of a portion of the temporary 1,835 foot 5X sheetpile protection wall below the mean high tide line, constitute "fill" as that term is defined in Coastal Act § 30108.2.

In addition, removal of sump material at the D14 and B11 sites will impact approximately .54 acres of wetland habitat.

Coastal Act § 30233(a) states in part:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> 1. *New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> 2. *Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> 3. *In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space,*

turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

4. *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*

5. *Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*

6. *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*

7. *Restoration purposes.*

8. *Nature study, aquaculture, or similar resource dependent activities.*

Coastal Act § 30233(a) limits open coastal water fill and dredging unless those activities meet the "allowable use" test. To meet this test the activities must fit into one of eight categories of uses permitted for open coastal water fill and dredging as enumerated in Coastal Act § 30233(a).

The express purpose of the proposed project is to remove subsurface petroleum-hydrocarbon contamination and restore the former oil field site to its pre-oil field natural state. This "restoration" project is therefore an allowable use under Coastal § 30233(a)(7).

As noted in other sections of this report, the Commission is requiring a number of mitigation measures to minimize the adverse effects of Unocal's proposed abandonment and remediation project. The project is therefore consistent with Coastal Act § 30233(a).

4.5.4 Oil Spills

Coastal Act § 30232 states:

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Potential Project-Related Oil Spills

The main purpose of the proposed project is to clean up petroleum hydrocarbon contamination that underlies the Guadalupe oil field and therefore protect against the spillage of oil into the

ocean and the Santa Maria River. The EIR acknowledges, however, that the clean up project itself could cause an accidental release of petroleum hydrocarbons into surface waters due to: (1) failure of a containment wall during excavation or as a result of erosion due to northward migration of the Santa Maria River; (2) recovery and transportation of the floating diluent taken from excavation pits; (3) fueling procedures or leaking fuel from heavy equipment; and/or (4) pipeline removal.

The primary area of concern is the large 5X plume that lies along the beach at the western edge of the field. To avoid impacts to Western snowy plover and California least tern nesting seasons, Unocal proposes to excavate the 5X plume over two winter seasons, between the months of September and March. Beach excavations, especially during the winter storm season, are especially vulnerable to high tides, high-wave runup, and northward migration of the Santa Maria River. These hazards were evident during the 1994 5X excavation where waves over-topped the cofferdam. Therefore, a wall failure or overtopping of the sheetpile during periods of high tides and wave run-up could result in an accidental release of diluent.

Also, in past excavations on the beach, petroleum hydrocarbon foaming in near shore waters has occurred due to the vibrations caused by pounding of sheetpile. Further, the project involves the use of heavy equipment on the beach. Recovered free product from the excavation areas will be collected in vacuum trucks and transported offsite for treatment and disposal. Therefore, fuel or free product could be spilled during truck refueling or ongoing operations.

Oil Spill Prevention

The first test of Coastal Act § 30232 requires the applicant to provide "protection against the spillage of crude oil, gas, petroleum products, or hazardous substances."

To excavate the plumes, Unocal will use temporary sheetpile to shore the excavation site and contain the petroleum hydrocarbon contaminants. **Special Condition 34** requires that the sheetpile for the 5X West and 5X East excavations be designed to withstand the March 1, 1983 wave conditions, noted as the 100-year storm event. Although the 5X sheetpile wall is currently in place (and could serve as the west side of the 5X excavation cofferdam), Unocal is proposing to construct a second west side wall behind the existing 5X sheetpile wall to provide additional stability and protection. Unocal has also proposed to place temporarily up to 40 geobags along the west and southwest area of the 5X sheetpile wall, if necessary, to provide additional protection against wave runup or river migration.

With respect to the 5X sheetpile protection wall, which will remain in place until the 5X excavation is complete, **Special Condition 30** requires Unocal to monitor the integrity of the wall as specified in Unocal's *Sheetpile Wall Monitoring Program* (dated August 20, 1998) (Exhibit 14).

Special Condition 28 requires Unocal, during the 5X excavation and with oversight by the independent Onsite Environmental Coordinator, to collect weekly samples of ocean water,

interstitial water, and sediments at the point of ground water discharge at low tide on the sandy beach and analyze them for elevated hydrocarbon concentrations per the direction of the CDFG/OSPR. If CDFG/OSPR determines that 5X excavation activities are causing, or have a high likelihood to cause, marine discharges of hydrocarbons, all activities will cease until affected agencies can consult with Unocal on how the excavation activities can be conducted without causing additional discharges.

Unocal is also proposing in its project-specific oil spill contingency plan a number of spill prevention measures, including:

- Unocal will remove all liquids from each crude oil/diluent pipeline with a vacuum truck prior to cutting the line;

- Unocal proposes to re-fuel heavy equipment only within each site's staging area or within the boundaries of a sheetpile cofferdam to minimize the risk of an accidental spill into surface waters;

- When earthmoving equipment is not operating, drip pans or sorbent material will be placed under the equipment to catch any fluid or fuel leaks that occur, unless it is in the hydrocarbon-affected area;

- Secondary containment will be provided for parked construction equipment and fuel storage vessels. A drip pan will be placed under the fueling point, and sorbent material under the overflow vent outlet;

- Staging, fueling, equipment and materials storage areas drilling fluids, and soil stockpiles will be located at least 100 feet away from surface water bodies or inside bermed areas to prevent release into surface waters;

- All storage vessels used for temporary containment of contaminated groundwater or recovered product will have adequate containment structures in place so that potentially spilled material will not impact adjacent water resources; and

- Proper containment techniques, including plastic sheeting, sorbent pads and booms, and vacuum trucks will be used when cutting or draining pipelines.

The Commission therefore finds the measures proposed by Unocal, in combination with the proposed conditions, consistent with the first test of Coastal Act § 30232.

Oil Spill Response

The second test of Coastal Act § 30232 requires Unocal to provide effective containment and cleanup equipment and procedures for accidental spills that do occur.

Unocal has prepared an Oil and Fuel Spill Contingency Plan that states that oil spill response equipment will be maintained on site throughout all cleanup and abandonment activities. This equipment includes: 4,000 feet of containment boom, various sorbent materials, 15-foot skiff with oars and outboard, and an oil skimmer. For each excavation project, drum skimmers, hard boom, sorbent boom, and other sorbent materials will be staged adjacent to, or used within, the site during free-product recovery operations. This equipment could also be used during a spill. The oil spill response plan also provides for spill notification and reporting, response tactical priorities and a list of personnel with the 40-hour hazardous materials training (HAZWOPER) required for spill response and cleanup. Unocal's oil spill response plan is missing wildlife exclusion measures and wildlife response procedures. **Special Condition 27** thus requires Unocal, prior to issuance of this permit, to submit to the Executive Director for review, approval a revised Oil Spill Contingency Plan that includes: (a) a Wildlife Exclusion Plan; (b) a Wildlife Response Plan (in the event of oiling of wildlife); and (c) an updated list of Hazwoper trained personnel.

Trained oil spill response personnel will be on site at all times during excavation and decommissioning activities. The personnel will be trained in the proper use of spill response equipment and deployment to provide initial response capabilities before additional resources are mobilized to the scene. When a specific project is not underway, two Unocal or contract personnel trained with the on-site response equipment are typically on site during normal working hours.

Unocal is also a member of the Clean Seas oil spill cooperative located in Santa Barbara County. Clean Seas has in its inventory over 54,000 feet of boom including open ocean, offshore, near shore and protective boom. The majority of Clean Seas' equipment for near shore spill response is located in Carpinteria. A Clean Seas response team will be alerted for any emergency actions that may result in a spill to a waterway. Their response time to the site is approximately three-four hours. Clean Seas also has three oil spill response vessels, *Mr. Clean I*, *Mr. Clean II*, and *Mr. Clean III*, which are currently moored at Port San Luis, Santa Barbara Harbor and Cojo Anchorage. The Clean Seas' oil spill response vessel currently moored at Port San Luis is 30 about 45 minutes away from the Guadalupe oil field. Clean Seas is currently evaluating the potential repositioning of its on-water oil spill response vessels, and/or the decommissioning of one vessel. Should Clean Seas propose to move oil spill response vessels from their current locations, or remove an oil spill response vessel from the current fleet, Unocal will need to apply for an amendment to this permit.

Commission Analysis

Notwithstanding the extensive oil spill containment and cleanup equipment provided by Unocal and Clean Seas, if hydrocarbons are accidentally released to surface waters this state-of-the-art equipment is still not "effective" at cleaning up spills in water. The Commission interprets the word "effective" to mean that spill containment and recovery equipment must have the ability to keep spilled oil off the coastline.

Testing results of equipment and government research facilities in the United States and Canada have demonstrated that oil recovery equipment operates with about 50% efficiency in relatively calm waters. These tests and actual experience in the field demonstrate that recovery efficiencies decrease as turbulence increases. Clean up capabilities in the open ocean will continue to deteriorate if sea dynamics increase. All booms and skimmers are limited in their effectiveness depending on wave height and wind speed. Under conditions of wave heights above six feet, booms and skimmers are largely ineffective (*i.e*., no measurable amounts of hydrocarbons are recovered). In wind wave conditions, the containment effectiveness of boom begins to lessen at a wave height of two feet. High winds can also cause some types of boom to lay over, allowing oil to splash or flow over the boom.

Weather conditions, characteristics of spilled oil, response time, amount of spilled oil, and the availability of equipment and trained personnel also influence the degree to which a response to a spill is successful. Data from the General Accounting Office indicates that although spill response technology has improved, no more than 10-15% of the oil in most major spills is ever recovered.

The Facility Emergency Response Plan and the Los Angeles/Long Beach Northern Sector Area Contingency Plan will be used as references for implementing response operations. However, should a major release occur during turbulent conditions, response will most likely consist of beach cleanup after the contaminated material washes on shore and is re-deposited.

Therefore, notwithstanding the on-site spill response equipment provided by Unocal and Clean Seas, the ability to effectively contain and clean up an oil spill does not exist at this time. The proposed project is thus inconsistent with the second requirement of Coastal Act § 30232. Nevertheless, the project can be found consistent with the Coastal Act under the "conflict resolution" section of the Coastal Act for the reasons discussed in section 4.5.10 of this report.

4.5.5 Shoreline Processes

Coastal Act § 30235 states in part:

> *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*

Coastal Act § 30253(1)(2) states:

> *New development shall:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms among bluffs and cliffs.

Installation of HDPE and 5X Sheetpile Walls

During the 1994 emergency excavation of a portion of the 5X plume, Unocal installed, on the seaward side of the 5X plume, a temporary 965-foot long, 25-foot deep HDPE wall to act as a barrier to diluent migration until the large 5X plume is fully removed.

During fall of 1995, the Santa Maria River dramatically migrated north along the beach and came within 45 feet of the HDPE wall and remaining 5X plume. Due to this threat, the CDFG/OSPR ordered Unocal to prevent a diluent release from occurring. Unocal proposed to install immediately a temporary 370-foot long sheetpile protection wall seaward of the HDPE wall to deflect the migrating river away from the HDPE wall and 5X plume. Unocal also considered some type of river management. However, at that time, Unocal had not yet fully developed a detailed river management plan that could be reviewed and approved by the resource agencies and implemented prior to the 1995-1996 winter storm season.

In November 1995, the Executive Director issued to Unocal emergency permit E-95-15-G to install the 370-foot long 5X sheetpile wall. That emergency permit required Unocal to develop a detailed River Outlet Management Plan ("ROMP") to be considered by the Coastal Commission as a potential alternative to the 5X sheetpile wall.

In April 1996, Unocal submitted to Commission staff a proposed ROMP in the form of a coastal development permit application. The proposal was to divert flow of the Santa Maria River to the south, back to its "historic" outlet, approximately 1,700 to 3,000 feet south of the HDPE wall. The diversion would be undertaken only after the river mouth closed. About 2-4 hours prior to high tide, workers would dig a 3-10 foot wide trench, working from the ocean to the lagoon. At the peak of high tide, the area adjacent to the lagoon would be cut and the lagoon would then drain out this new channel. Unocal proposed this effort as a low impact, minimal river manipulation option.

The Coastal Commission hired three independent peer reviewers[10], funded by Unocal, to examine the technical adequacy and potential success of the proposed ROMP. Their overall evaluation concluded that while river management could be effective at re-establishing a new southern river mouth location, Unocal's plan would not work as proposed. The reviewers recommended that the existing northern river channel be filled in, or blocked out, to prevent re-establishment of a northern outlet. They also concluded that maintenance breaching might need to be undertaken repeatedly and that there could be significant adverse resource impacts,

[10] The three peer reviewers were Simons, Li & Associates, Inc., Philip Williams & Associates, Ltd., and Hsieh Wen Shen.

particularly to listed species, as a result of such activities. Based on the conclusions of the third party review, Unocal withdrew its ROMP application in July 1996.

Throughout 1996, the river's outlet remained north and west of the 5X plume and 5X sheetpile wall. Beach surveys showed that continued erosion of the beach could flank the north end of the 370-foot long sheetpile wall and result in a marine release of diluent from the 5X plume area. The RWQCB directed Unocal to take additional action to prevent another marine release. Unocal responded with a proposal to extend the 5X sheetpile wall 1,033 feet north and 450 feet to the southeast. In November 1996, the Executive Director issued emergency permit E-96-02-G for the sheetpile wall extension. (Emergency permit E-96-02-G superceded and replaced E-95-15-G.) The total length of the 5X sheetpile wall is 1,835 feet.

The Commission is not required pursuant to Coastal Act § 30235 to approve the installation on the beach of a sheetpile protection wall to prevent the release of diluent from the 5X plume because the sheetpile wall is not to serve coastal-dependent uses or protect existing structures or public beaches from erosion.

5X Sheetpile Wall Impacts

The EIR concludes that the 5X sheetpile wall[11] has a significant, adverse impact on natural beach development. The wall affects wave runup and reflection, which alters flow velocities and therefore sand erosion and deposition. This adversely affects the natural process of beach nourishment through wash washup, sand deposition, and overwash. The effect of wave reflection from the wall is to focus wave energy downward, eroding and removing existing sediment. The wall inhibits the natural replenishment of sand that could be eroded in front of the wall by obstructing the movement of sediment from the sand dunes to the beach and vice versa.

The 5X sheetpile wall is exposed to coastal and riverine processes that have exacerbated the erosion of sediments on the western side of the wall. Due to the north-south orientation of the wall, there is no exchange of sediment from the dunes to the beach. Also, exposure of the wall reduces the amount of windblown sand moving from the beach to the foredunes.

Erosion of sediments at the base of the wall will increase whenever there are elevated water levels at the wall associated with the Santa Maria River flowing northward along the beach in front of the wall, or by storm swells and waves that impinge upon the wall. This can lead to localized erosion of the beach seaward of the wall. Whenever the river outlet stays open and is located opposite the wall, tidal waters, currents, and waves are even more likely to reach the wall. Once the wall is exposed and waves break against the wall, hydraulic forces will act on the base of the wall and scour will be exacerbated. Maintaining the seawall as the shoreline continues to erode and retreat will result in a narrower beach.

[11] The EIR further notes that since the HDPE wall is installed several feet below ground surface, it does not have a significant effect on the beach's natural geomorphologic processes.

The existence of the 5X sheetpile wall has also altered the migration pattern and position of the river channel resulting in erosion of the east bank and foredunes, narrowing of the river spit, and/or modification of the river outlet location. Placement of the sheetpile wall in this area of beach foredune, historically occupied by the Santa Maria River, has established an obstruction or barrier to fluvial processes associated with the river. During most of 1996 and 1997, the river channel was located in the immediate area of the 5X sheetpile wall[12] and significant erosion was observed.

Prior to installation of the 5X sheetpile wall, the river was progressing north along the beach as a natural migration pattern. Under normal conditions, the width of the channel is unrestricted so velocities are lower and migration is slower. After installation, the sheetpile wall created a barrier to the east side of the channel which resulted in a narrower, deeper river channel with greater scour due to the increased flow velocities. As the river continues to migrate north and south, there will be times when contact is made with the southern segment of the sheetpile wall. At these times, flow will be deflected and erosion will occur on the east bank with subsequent loss of adjacent foredune.

The 5X sheetpile wall is thus contributing significantly to erosion of the beach area and is therefore inconsistent with Coastal Act Section 30253.

The EIR thus recommends that the 5X sheetpile walls be removed as soon as possible. **Special Condition 41** requires Unocal to remove the 5X sheetpile at the earliest opportunity following excavation of the 5X plume. If the river or lagoon is present in front of the sheetpile wall, Unocal is to (a) schedule removal for the period November through January to avoid nesting of the tidewater gobies, unless otherwise allowed by USFWS, and (b) prior to removal of the wall, contour the land on the west side to a stable slope that would minimize the probability of a cave-in into the lagoon or river after the sheetpile and HDPE walls are removed.

Until the 5X sheetpile wall is removed, **Special Condition 30** requires Unocal to monitor the 5X sheetpile wall as set out in the *Unocal Guadalupe Sheetpile Wall Monitoring Program* (dated August 20, 1998) (See Exhibit 14). The monitoring program requires Unocal to: (a) visually inspect the wall, sand spit and river bank daily; (b) conduct elevation surveys of the wall, sand spit and riverbank quarterly from May to October and weekly from November through April; (c) monitor monthly groundwater elevations landward of the wall; and (d) photograph the site on a monthly basis. Between September 30 and March 1 of each year (after the snowy plovers have left the area), **Special Condition 31** requires Unocal to make sure that the 5X sheetpile wall is covered in sand, except in those locations where the Santa Maria River is immediately adjacent to the 5X sheetpile wall.

Installation of Temporary Sheetpile at Plume Excavation Sites

Unocal proposes to install temporary sheetpile at each of the three plume excavation sites and at the B11, TB4 and D14 sump sites. Use of sheetpile to conduct an excavation limits the area of

[12] In February 1997, Unocal installed H-beam walers on the wall to provide additional structural stability.

disturbance and therefore minimizes adverse erosion and sedimentation patterns. **Special Condition 32** requires that prior to sheetpile installation at each excavation site, the Executive Director shall review and approve sheetpile locations to ensure that site disturbance is minimized. **Special Condition 33** requires that the sheetpile walls be designed by a licensed civil engineer and that each wall's design be submitted to the Executive Director for review and approval. To ensure the sheetpile's structural integrity, **Special Condition 34** requires that the seaward sides of the temporary sheetpile for the 5X excavation, and any associated energy dissipation system (*i.e.*, geobags), be designed to withstand the 100-year storm event (maximum wave runup height of 8 feet, combined with a 7-foot astronomical tide, and a scour depth of 0.0 feet). **Special Condition 9** requires the temporary sheetpile to be removed after each excavation area is backfilled with clean material.

Impacts of Excavating Plumes/Sumps

The EIR also identifies that excavation activities will likely cause short-term adverse impacts to geomorphologic processes at the site. The excavation of sediments in active and stable dune zones may modify erosion and sedimentation patterns as a result of wind scour, contour changes, and loss of vegetation. Open, exposed, and unvegetated areas will be eroded by wind processes, and sediments will be distributed to other areas, thus adversely affecting sedimentation.

To minimize such impacts, **Special Condition 8** requires that prior to ground disturbance at each site Unocal submit to the Executive Director for review and approval procedures for soil stabilization and erosion control. Prior to initiating construction activities, **Special Condition 16** requires Unocal to brush-rake the excavation area and, to the maximum extent feasible, salvage seeds. Top soil and clean overburden will be removed and stockpiled under the requirements of **Special Condition 17**. Soil stockpiles will be covered with plastic sheeting to prevent wind erosion and reduce exposure to precipitation.

The compatibility of sediment used to replace the affected soils is also critical to maintaining the natural sedimentation processes for dune maintenance and development. **Special Condition 37** requires Unocal to submit to the Executive Director a sediment grain-size analysis of removed and replacement material. No filling of an excavated area shall occur until the grain-size compatibility between the removed sediment and replacement sediment is approved by the Executive Director. To evaluate replacement material suitability, Unocal is to provide to the Executive Director (a) the volume and sources of replacement material: (b) sieve analyses for all replacement material and native sands (16^{th}, 50^{th}, and 87^{th} percentile grain sizes by weight, at a minimum); (c) overfill ratio for sites subject to erosional forces by ocean waves and the river; and (d) color analysis and color sample of all native and replacement materials that have the potential to become exposed.

After clean soil has been placed into the excavation cavity pursuant to **Special Conditions 36** and **37**, stockpiled soil will be redistributed over the backfill material. When the sites have been backfilled, Unocal will compact and re-grade the excavated and altered areas. **Special Condition 9** in part requires Unocal to (a) obtain pre-construction topographic survey information and (b) upon, completion of an excavation, remove the temporary sheetpile and restore the ground

surface to approximate its pre-construction topographic profiles. Restoring contours that match adjacent dune forms is critical to minimizing future erosion/sedimentation problems. Vegetation and detritus from the brush-raked stockpile will then be added, providing a combination of organic mulch and wind erosion control to promote natural revegetation of the remediation sites. The areas will be restored and revegetated as further required by **Special Condition 9**.

Tsunamis

A seismically generated tsunami could have a significant impact on the excavation activities proposed within the beach area. Tsunami runup (9 to 24 feet for return periods of 100 to 500 years, respectively) would impact excavation areas through inundation of open excavations, submergence of equipment within excavations, overtopping of sheetpile walls, and disturbance of beach access. Except for the 5X excavation, the planned excavations do not cover large areas and each will remain open for a short period of time. The EIR considers it highly improbable that a tsunami capable of generating runup will occur. However, **Special Condition 35** requires Unocal in the event of a tsunami warning to move all personnel and movable equipment from the beach area and to a safe elevation based on the warning. If no elevation is given in the warning, all personnel shall be evacuated to an elevation at or greater than 100' mean sea level (msl) and movable equipment shall be moved to or above the "B" road. If equipment cannot be moved within the time allowed by a tsunami warning, to the extent safe and feasible, Unocal shall secure or anchor all equipment and drain all fuel tanks to prevent a marine release of hydrocarbons.

Conclusion

For the reasons stated above, the Commission finds the 5X sheetpile wall component of the Beach Projects inconsistent with Coastal Act §§ 30235 and 30253. Nevertheless, the project can be found consistent with the Coastal Act under the "conflict resolution" section of the Coastal Act for the reasons discussed in Section 4.5.10 of this report.

4.5.6 Public Access and Recreation

Coastal Act § 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all people consistent with pubic safety needs and the need to protect public rights, rights of private property owners, and natural resources from overuse.*

Coastal Act § 302ll states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act § 30221 states:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public and commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

The 2,700-acre former oil field is part of the 10-mile long Nipomo Dunes Complex, which contains one of the most unique, sensitive and relatively undisturbed coastal dune ecosystems in the state. The dune complex is also a heavily used recreational area.

The shoreline of the Guadalupe oil field is bounded on the south and the north by the Guadalupe Nipomo Dunes Preserve which has many owners but is overseen and managed by the Nature Conservancy. The closest recreational access to the beach west of the project site is provided from the Guadalupe-Nipomo Dune Preserves two entrances. One entrance is located in northern Santa Barbara County ¾ mile south of the oil field at Rancho Guadalupe County Park, immediately south of the Santa Maria River. The other entrance is approximately four miles north of the oil field at Oso Flaco Lake Natural Area in San Luis Obispo County. The public uses the beach west of the site but is not allowed on the former oil field. There is no public coastal access through the oil field.

The EIR notes that about 83,000 people visited the Preserve in 1996. Visitation rates are highest in the summer and fall and drop off during the rainy, winter months. A 1995 survey of Preserve visitors indicated that the five most frequently mentioned reasons for visiting were: sightseeing, fishing, curiosity, exercise and surfing. Horseback riding and dog walking are seasonally restricted to protect nesting California least terns and western snowy plovers. The majority of visitors spent their time south of the Santa Maria River and oil field at Rancho Guadalupe County Park.

Coastal access via the Preserve is facing increasing demand as local populations and tourism increase. No new beach or coastal accessways are currently planned in southern San Luis Obispo County. Access to and availability of coastal access has been limited in northern Santa Barbara County since many portions of the north County are in private or military ownership and restricted to public use.

Project-Related Access/Recreation Impacts

Unocal's past and proposed Beach Projects have reduced and will continue to reduce the quality of the recreational experience along the shoreline. Partial excavation of the 5X plume in the summer and fall of 1994 occasionally precluded public passage along the beach immediately west of the site. The presence of remedial activities during high tides or storm events may affect public access along the shore, particularly during the future excavation of the 5X plume. The presence of construction teams close to the beach will negatively affect the recreational experience of beach users by reducing the solitude of the beach experience. Also, visitors to Rancho Guadalupe County Park may refrain from using the beach area near the oil field due to the industrial character of the

cleanup and abandonment work and the presence of noisy, heavy equipment. Hydrocarbon odors generated during excavations may also deter beach users.

To minimize the projects' adverse effects on access and recreation, the Commission is requiring in **Special Condition 39** that Unocal provide adequate fencing and other markings to warn the public of project hazards. During beach excavations and other activity near points of public access at the beach, Unocal shall station a worker to keep the public at a safe distance from the work areas while still allowing the public to traverse the beach. The Commission is also requiring in **Special Condition 40** that at least one week before starting project activities, Unocal shall coordinate with the Nature Conservancy and California Department of Parks and Recreation to provide notice to beach users of project activities. Signs in English and Spanish shall be posted at Rancho Guadalupe County Park and Oso Flaco Lake parking lots. The signs shall indicate that the beach will remain open during project activities.

To mitigate for unavoidable public access and recreation impacts caused by the past projects (approved by emergency permits) and the overall Phase 1 cleanup and abandonment project, the County's coastal development permit/development plan requires Unocal to (1) re-offer to dedicate shoreline public access and open space easements originally required by a 1980 coastal development permit; (2) indemnify the party(s) that accept the OTDs against any claim that could arise out of Unocal's oil field operations; (3) fund access improvements at the Guadalupe Nipomo Dunes Preserve; and (4) either provide an open space, habitat protection, and public access easement over the entire 2,700 acre oil field, if feasible, or acquire or cause the acquisition of irrevocable protective easement over similar habitat areas within the Guadalupe-Nipomo Dunes Complex.

Offers to Dedicate Access/Open Space Easements Along the Shoreline

As part of a 1980 coastal development permit (CDP 409-24) to expand oil production operations at Guadalupe, the Coastal Commission required Unocal to dedicate two easements over approximately 300 areas of sand dune habitat between the Santa Maria River and the Mobil Coast Preserve to the north. The first easement is for public access and would occupy a band of 80 acres between the mean high tide line and the area that was once the first row of oil wells. The second easement is for habitat protection and preservation of open space that would occupy 300 acres, including the north-to-south public access strip along the beach.

On June 11, 1980, Unocal recorded OTD 23796 and 23795 for easements providing for limited public access and habitat protection/open space, respectively (Exhibit 15). The OTDs are irrevocable for a period of 21 years running from the date of recordation. Although the Coastal Conservancy has expressed interest in accepting the grant of easements, it and other potential recipients have not done so due to the petroleum contamination at the site. These OTDs are due to expire June 11, 2001.

The Commission is concerned that these OTDs may expire before any party accepts them. As discussed in Section 4.2.9 of this report, after Commissioners Wan and Areias appealed the

County's September 1998 coastal permit decision, Commission staff worked with the County to revise the County's conditions of approval to require Unocal to (a) re-offer to dedicate the OTDs that are due to expire in 2001, and (b) indemnify any party that accepts the OTDs. The County's coastal permit and **Special Conditions 43** and **44** of this permit require that the subject OTDs be effective for at least 25 years after the RWQCB issues a closure letter for the site. In addition, Unocal must issue a fully executed Indemnity Agreement in a form and content as set forth in Exhibit 16 to any entity approved by the Executive Director to accept the existing or new, replacement OTDs. The Indemnity Agreement shall indemnify the party accepting the OTDs from and against any and all liability, loss, costs, damages, claims, liens and expenses which directly or indirectly arise out of or are in any way associated with any past, present and future operations or activities conducted at the Guadalupe oil field by Unocal or any person acting as Unocal's representative or contractor.

Public Access/Recreation Improvements

The County's coastal permit (Exhibit F, Condition 109) also requires Unocal to fund $1,069,000 in public access improvements and community outreach and education programs within the Guadalupe Nipomo Dunes Preserve. Of the $1,069,000, the Rancho Guadalupe County Park received $784,000 in March 1999 for development of a Park Master Plan (to include construction of a roadside viewpoint, parking lot, restrooms, and interpretative signs) and five years of park maintenance. The remaining funds are going to the Nature Conservancy's Dunes Center[13] in the City of Guadalupe to fund three years of operations, training of volunteers, management of outreach and education programs, and community activities.

Site-wide Easement Required by County Coastal Permit

In addition, to mitigate 15 significant, unavoidable "Class I" impacts, (as identified in the EIR), the County is requiring in its coastal permit (Exhibit F, Condition 110) that if Unocal acquires ownership of the oil field (Unocal is currently trying to purchase the oil field from the Leroy Trusts), it shall irrevocably offer to dedicate to a public agency or private non-profit association a site-wide open space, habitat protection, and public access easement. The purpose of the site-wide easement is for visual resource protection, habitat protection, and managed public access to the Guadalupe dunes and shoreline. The easement is to be located over the entire oil field, which is approximately 2,700 acres. The offer is to provide that no development, except for habitat restoration, remediation activities, abandonment activities and other support facilities for habitat restoration and managed public access, shall occur within the easement area.

[13]The Dunes Center was established by the Nature Conservancy in 1996, in partnership with the People for the Nipomo Dunes, Coastal Conservancy, and the Guadalupe Chamber of Commerce. The Dunes Center is a community-based interpretive center that provides visitor orientation, educational outreach, and research to promote conservation of the Guadalupe Nipomo Dunes. Approximately 6,500 people visit the Dunes Center per year. The Nature Conservancy recently transferred management responsibility of the Dunes Center, on a temporary basis, to the Land Conservancy of San Luis Obispo County.

In the alternative, Unocal may grant fee title to the entire oil field to a public agency or private non-profit (approved by the Executive Director and the County Planning Director) for the purposes described above.

Unocal may not succeed in acquiring ownership of the oil field, however. In this event, Unocal must acquire or cause the acquisition of irrevocable protective easements over a combination of foredune, backdune, and/or wetland habitats in the Guadalupe-Nipomo Dunes Complex that are the functional biological equivalent of the oil field site in its natural condition.

If Unocal demonstrates to the satisfaction of the County Board of Supervisors and the Coastal Commission that implementation of one of these three options is infeasible, Unocal shall pay to the County by June 30, 2001 a mitigation fee in an amount equal to the monetary value of such open space, habitat protection, and managed public access easement. If the value of such easement is not agreed upon by the Executive Director, County Planning Director and Unocal, then it shall be appraised by an appraiser chosen by the San Luis Obispo Superior Court. The funds are to be used by the County within 10 years for the purchase and/or habitat restoration of property in the Guadalupe-Nipomo Dunes Complex.

The Commission thus finds that the cleanup and abandonment project, as strictly conditioned by the Commission and the County, will preserve the public's right of access to the coast and provide for oceanfront recreational use and, therefore, is consistent with Coastal Act §§ 30210, 30211 and 30221.

4.5.7 Visual Resources

Coastal Act § 3025l states in part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.*

The project area is located within the 12,000 acre Nipomo Dunes Complex, which reaches from Pismo Beach in southern San Luis Obispo County to Mussel Rock in northern Santa Barbara County. In designating the Nipomo Dunes Complex as a National Landmark, the Secretary of the Interior stated that "… The area… [is] one of the most scenically attractive areas in southern California. The EIR notes that views of the dunes and views from the dunes are " highly sensitive". A highly sensitive area is defined as one in which the affected views are rare, unique or in other ways special to the region or locale.

As discussed in Section 4.5.6 of this report, the public does not have access to the portion of dunes within Unocal's lease area, but may enter the beach and dunes area via entrances at Oso Flaco Lake to the north and Ranch Guadalupe County Park to the south.

The EIR notes that visitors entering the Oso Flaco Lake Natural Area do not frequently hike south along the beach to the mouth of the Santa Maria River, which is approximately 3.8 miles away. A 1995 Nature Conservancy visitor survey indicates that a significant portion of the Rancho Guadalupe County Park visitors spend their time between the parking lot and the river mouth or on the beach north of the river. Visitation rates are highest in the summer and fall and drop off during the winter. Access to the beach north of the river is periodically blocked by the river during high flows, high tides, winter storms, or when the lagoon drains through a natural breach of the sand spit. Therefore, most visitors congregate north and south of the project area.

However, excavation of the large 5X plume and shoreline sumps, scouring of the 5X sheetpile wall, and the placement of geobags along the west and southwest corner of the site have caused, and will cause, adverse visual impacts to beach users.

Project-Related Visual Impacts

The 1835-foot long 5X sheetpile wall, installed in two phases between 1995-1996, will be in place for up to a total of five years. Between November 1995 and November 1997 approximately 1,100 feet of the west-facing sheetpile was scoured to a depth of -7 to -15 feet, resulting from northward migration of the Santa Maria River or from erosion of the sand-spit during winter storms. Since November 1997, sediment has deposited in front of the sheetpile wall and it is rarely visible.

The scoured sheetpile wall was visible to visitors at Rancho Guadalupe County Park. The picket-like striations of the wall and its large scale served to draw attention and dominate the view. An exposed sheetpile wall is clearly incongruous with the surrounding foredunes. The EIR concludes that the adverse visual impact of the sheetpile wall, when exposed, is significant. Although the sheetpile wall is currently fully covered, it could again become scoured and exposed during future winter seasons. Removing the sheetpile wall as soon as possible will eliminate this visual impact. **Special Condition 41** requires Unocal to remove the 5X sheetpile at the earliest opportunity following excavation of the 5X plume, which is scheduled to be completed by March 2001. **Special Condition 41** further requires Unocal to re-contour the disturbed area to its natural seasonal profile.

The presence of geobags along the riverbank has a similar adverse aesthetic impact. The bags are large and black and clearly inconsistent with the visual character of the surrounding dune environment. Some of the geobags will be visible to beach users at all times, even during the summer peak recreational season. The geobags are temporary, however. Some may be in place for a few months during the winter storm season, if necessary, and then immediately removed. Those placed along the riverbank at the southwest corner of the oil field may be in place 2-3 years. **Special Condition 42** requires Unocal to remove all geobags at the earliest opportunity following excavation of plumes and sumps authorized by this permit.

Construction activities associated with the 1994 5X beach excavation caused significant short-term adverse visual impacts. Construction activities spanned about five months and included the

presence and movement of heavy equipment, the construction of a large cofferdam, platforms, tanks, staging areas, and soil stockpiles.

The EIR notes that future excavation of the 5X West and East sites will be readily discerned by beach users when viewed at distances of up to one half mile away. Adverse visual impacts to beach users will be minimized, however, since the 5X West and 5X East excavations will be carried out between the months of September and March (to avoid the snowy plover nesting season), and therefore outside the peak use recreation season.

To minimize the adverse visual effects of the Beach Projects, **Special Condition 38** requires Unocal to schedule the excavations located within the viewshed of Rancho Guadalupe County Park during the winter season, if feasible. **Special Conditions 41** and **42** require that all sheetpile and geobags be removed after excavation of plumes and sumps. **Special Condition 9** requires Unocal to re-grade the disturbed areas to approximate pre-existing topography and then revegetate the sites.

Although excavation activities will remove all vegetation from the foredunes within the areas of disturbance, the areas of bare sand will appear similar to natural areas of wind scour. The EIR concludes that their appearance would be perceived to be an adverse visual impact only if before-and-after photographs were to be compared. To the public, the disturbed area would appear to be within the range of what is expected in a dune environment. The EIR thus concludes that if the above-mentioned measures are implemented by Unocal, the project's adverse visual impacts will be temporary and short-term.

The abandonment component of the project will improve the visual quality of the oil field area. Unocal proposes to remove all pipelines, well pads, and access roads associated with the oil field, returning the site to its former natural state. This abandonment work will require use of heavy equipment; however, the adverse visual impacts of the abandonment activities will be short-term.

The Commission thus concludes that notwithstanding the project's adverse visual impacts, these impacts will be short-term. The cleanup and abandonment project, as conditioned, will minimize any long-term alteration of natural land forms and, when complete, will enhance the visual quality of this area. The Commission therefore finds the project, as conditioned, consistent with Coastal Act § 30251.

4.5.8 Archaeological Resources

Coastal Act § 30244 states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The proposed project is within an area of central California with a history of prehistoric occupation extending over the past 9000 years. The Native American group, Purismeno Chumash, resided at and near the oil field lease area between 950 and 200 Before Present. The EIR identifies one sensitive archaeological site, SLO-851, within the boundary of the former oil field; however, this site is not near the past or proposed Beach Projects that are subject of this permit application. No other remediation sites are located within or adjacent to recorded archaeological sites.

Although no archaeological sites are recorded in any of the remediation sites, it is possible that buried, unrecorded cultural deposits exist below active or stabilized dune formations. Any such resource would most likely be encountered above areas of tidal influence. Therefore, the County of San Luis Obispo is requiring that all ground disturbance be monitored by a County-qualified archaeologist and local Native American representative. If a potentially significant archaeological or historical material is identified, work shall be temporarily redirected and Unocal shall fund a Phase 2 archaeological assessment of the find. If the materials are determined to be significant under CEQA, Appendix K criteria, Unocal shall fund a Phase 3 data recovery mitigation program to collect a representative sample of the materials that would be lost. All investigations are to be performed by a County-qualified archaeologist and local Native American representative.

The Commission therefore finds the project consistent with Coastal Act § 30244.

4.5.9 Air Quality

Coastal Act § 30253(3) states:

> *New development shall be consistent with requirements imposed by the air pollution control district or the State Air Resources Control Board as to each particular development.*

The San Luis Obispo Air Pollution Control District ("SLOAPCD") is the local air pollution control district responsible for implementing federal and state air quality standards in the project area. For regulatory purposes, air pollutants are generally recognized as "criteria pollutants" or as toxic air pollutants. Criteria pollutants include carbon monoxide ("CO"), nitrogen oxide ("NO_2"), sulfur dioxide ("SO_2"), particulate matter with a diameter of up to 10 microns ("PM10"), lead, sulfates and hydrogen sulfide ("H_2S"). Toxic air pollutants are those known or suspected to cause cancer, genetic mutations, birth defects, and other serious illnesses to people. Reactive organic gases ("ROG") are also of concern because of their role in forming ozone, a secondary pollutant.

For most criteria pollutants, regulatory and control standards have been in effect for more than 20 years and control strategies are designed to ensure that the ambient concentrations do not exceed certain thresholds. For toxic air emissions, the air district usually assesses the potential

impacts to public health in terms of "risk" and emissions may be controlled by prescribed technologies.

The past Beach Projects (those authorized by emergency permits in 1994-1998) and proposed Beach Projects are subject to SLOAPCD permit requirements, rules and regulations. Permits are required for storage and stockpile of contaminated materials, thermal treatment devices, and large stationary engines. The EIR identifies that air pollutants will result from construction activities, operation of construction equipment, fugitive dust sources and exposed hydrocarbon areas.

Past Beach Projects

For the 1994 5X plume excavation, SLOAPCD issued to Unocal Permit to Operate ("PTO") U-3032-G-1 for the excavation and stockpiling of 125,000 cubic yards of petroleum-contaminated soil. Permit conditions included the covering the contaminated soils with a vapor barrier, a soil monitoring plan aimed at identifying volatile hydrocarbon and sulfur associated with the contaminated material, fugitive dust controls, and air monitoring downwind of the excavation zone and stockpile areas. SLOAPCD modified existing Unocal permits U-3032-A-1 and U-3032-F-1 to cover water collection and piping systems used during the 5X project. Unocal offset fugitive hydrocarbon emissions caused by the 5X excavation by closing sumps at Tank Battery 8 and Tank Battery 9 that were under APCD permits.

Two thermal desorption units ("TDU") were used to "clean" contaminated soil after excavation. In November 1994, SLOAPCD issued PTO G-1665-A-1 to Granite Construction for the 120 ton/hour TDU and PTO U-3032-H-1 to Unocal for the 30 ton/hour TDU. Both permits specified emission limits for the amount of total non-methane hydrocarbons ("TNMHC"), oxides of sulfur ("SO_x"), oxides of nitrogen ("NO_x"), particulate matter smaller than 10 microns ("PM10") , and carbon monoxide ("CO") that could be emitted from each unit per ton of contaminated soil processed. SO_x emissions were a primary concern and estimated to be 108 tons over the duration of the 5X project. To offset those emissions under SLOAPCD Rule 204, Unocal sought and achieved contemporaneous emission offset credits through closure of the coke plant at the Santa Maria Refinery.

For the A2A area projects, Unocal received in March 1998 PTO U-3032-G-3 to excavate and stockpile about 29,000 cubic yards of petroleum contaminated soil. Permit conditions were similar to those required by SLOAPCD during the 1994 5X plume excavation.

Neither the 5X sheetpile installation nor removal of the Leroy 2 sump required air district permits.

Proposed Beach Projects

At present, Unocal holds several air permits for equipment and processes associated with ongoing ground water and soil treatment efforts at Guadalupe. Operation of the Land Treatment

Unit is covered under PTO U-3032-G-4 and requires covering of stockpiles of contaminated materials, air and soil monitoring.

On October 13, 1999, SLOAPCD issued to Unocal PTO 598-1 to cover Phase 1 remediation and abandonment activities required by RWQCB CAO 98-38. The PTO addresses emissions from contaminated stockpiles, the Land Treatment Unit, and waste treatment operations. Also included are sources not typically included in air permits such as heavy-duty off-road construction equipment and worker commuter trips. These latter sources are considered "CEQA sources" since mitigation of these measures typically occurs through the CEQA process and not through issuance of an air district permit.

Emissions of ROG, NO_x, and PM10 from the "CEQA sources" are projected to significantly exceed SLOAPCD's emission thresholds. Therefore, SLOAPCD staff negotiated with Unocal the establishment of a "CEQA mitigation fund"[14] at a rate of $7,000 per ton (ROG+ NO_x+PM10) to be used by the air district to fund projects in the area capable to reducing air quality impacts. SLOAPCD estimates the fund to be approximately $900,000 (Letter from Barry Lajoie, San Luis Obispo Air Pollution Control District, to Alison Dettmer, CCC, October 4, 1999).

The Commission thus finds that the project will be carried out consistent with the rules and requirements of the local air district and therefore is consistent with Coastal Act § 30253(3).

4.5.10 Policy Conflict Resolution

Coastal Act § 30007.5 states in relevant part:

> *The Legislature further finds and recognizes that conflicts may occur between one and more policies of the division. The Legislature further declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

The Commission finds that in applying the policies of Chapter 3 of the Coastal Act to Unocal's proposed cleanup and abandonment project results in conflicts between certain Coastal Act policies. However, for the reasons described below, the Commission believes that after applying the standard of Coastal Act § 30007.5, on balance, it is most protective of coastal resources to approve the project:

- The Commission found in Section 4.5.1 of this report that the cleanup and abandonment project will cause significant, adverse, and perhaps unmitigable, impacts to marine

[14] SLOAPCD envisions a variety of projects that could be funded with the CEQA mitigation fund, including the retrofit or replacement of booster pumps used in agricultural production, heavy-duty on- and off-road vehicle re-power and retrofit options, installation of alternative fuel infrastructure, bicycle lanes and transit infrastructure.

resources and ESHA and the sensitive species they support. The Commission thus found the project inconsistent with Coastal Act §§ 30230, 30231 and 30240(a) which require that marine resources, ESHA, and species of special biological concern be maintained and protected.

However, if the hydrocarbon contamination is left in place, future discharges of the contaminated soil and groundwater into surface waters and ESHAs could cause greater damage to marine resources, ESHAs and the sensitive species they support which is in clear conflict with Coastal Act §§ 30230, 30231 and 30240(a) standards that require healthy populations of marine resources, ESHAs and species of special biological significance to be maintained and protected. Therefore, eliminating the potential for the spillage of hydrocarbons by removing the contamination, as required by Coastal Act § 30232, will be more protective of coastal resources than leaving such contamination in place.

- The Commission found in Section 4.5.4 of this report that in the event of a release of hydrocarbons into surface waters, there is currently no "effective" oil spill containment and cleanup equipment available to keep oil off the shoreline. The Commission thus found the project inconsistent with the second test of Coastal Act § 30232 which requires that an applicant provide effective cleanup equipment for accidental spills that do occur.

  However, leaving the contamination in place will increase the likelihood of a large release of hydrocarbons into surface waters and ESHA, including wetlands, especially since much of the contamination underlies the active beach area, the historical channel of the Santa Maria River, or is in or adjacent to wetland areas, and is susceptible to erosion. Therefore, eliminating the potential for the spillage of hydrocarbons by removing the contamination, as required by the first test of Coastal Act § 30232, will be more protective of coastal resources than leaving such contamination in place.

- The Commission found in Section 4.5.5 of this report that it is not required pursuant to Coastal Act § 30235 to approve the installation on the beach of a sheetpile protection wall (approved under emergency permit E-97-03-G) to prevent the release of diluent from the 5X plume because the 5X sheetpile wall does not serve coastal-dependent uses or protect existing structures or public beaches from erosion. The Commission also found the 5X sheetpile wall to be causing significant erosion to Guadalupe Beach and, therefore, is inconsistent with Coastal Act § 30253(a) which requires that new development neither create nor contribute significantly to erosion.

  However, requiring removal of the 5X sheetpile wall now, before complete removal of the large 5X plume, will increase the likelihood of a large release of hydrocarbons into the ocean and Santa Maria River which conflicts with the marine resource (Sections 30230 and 30231), ESHA (Section 30240(a)) oil spill (Section 30232), and public access and recreation policies (Sections 30210, 30211 and 30221) of the Coastal Act.

For these reasons, the Commission finds pursuant to Coastal Act § 30007.5 that, on balance, it is more protective of coastal resources to resolve these conflicts by approving the proposed cleanup and abandonment project. Accordingly, the Commission concludes that the project is consistent with the Coastal Act.

5.0 California Environmental Quality Act

As "lead agency" under CEQA, the County of San Luis Obispo certified in March 1998 an EIR for Unocal's overall Phase 1 Guadalupe oil field remediation and abandonment project and the Past Beach Projects. The EIR did not cover removal of the sumps that have since been identified by Unocal or the widening of the A road. Therefore, in September 1999, the County prepared an Addendum to the EIR.

The Commission's permit process has also been designated by the State Resources Agency as the functional equivalent of the CEQA environmental impact review process. Pursuant to section 21080.5(d)(2)(A) of the CEQA and section 15252(b)(1) of Title 14, California Code of Regulations, the Commission may not approve a development project "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment." The Commission finds that there are no feasible less environmentally damaging alternatives or additional feasible mitigation measures that would substantially lessen any significant adverse impact which the activity may have on the environment, other than those identified herein. Therefore, the Commission finds that the project is consistent with the provisions of the CEQA.

APPENDIX A

Standard Conditions

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Compliance. All development must occur in strict compliance with the proposal as set forth in the application for permit, subject to any special conditions set forth below. Any deviation from the approved plans must be reviewed and approved by the staff and may require Commission approval.

4. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

5. Inspections. The Commission staff shall be allowed to inspect the site and the development during construction, subject to 24-hour advance notice.

6. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

7. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

APPENDIX B

Substantive File Documents

Coastal Development Permit Application Materials

Coastal Development Permit Application E-99-009.

Agency Permits and Orders

Emergency Permit E-94-12-G, issued by the Coastal Commission's Executive Director, August 23, 1994.

Emergency Permit E-95-18-G, issued by the Coastal Commission's Executive Director, November 30, 1995.

Emergency Permit E-97-03-G issued by the Coastal Commission's Executive Director, February 21, 1997

Emergency Permit E-98-09-G issued by the Coastal Commission's Executive Director, May 8, 1998.

Coastal Development Permit/Development Plan No. D890558D, approved by the County of San Luis Obispo, December 1998.

Coastal Development Permit Appeal No. A3-98-91 filed by Commissioners Wan and Areias, October 18, 1998.

Cleanup or Abatement Order No. 98-38. Central Coast Regional Water Quality Control Board, April 1998 (as amended November, 1998).

Pre-Construction Notification File 97-50261-TW. U.S. Army Corps of Engineers, Nationwide Permit 38, Cleanup of Hazardous and Toxic Waste, September 13, 1999.

Unocal Oil and Fuel Spill Contingency Plan, February 24, 1999, as approved by California Department of Fish and Game Office of Spill Prevention and Response February 2, 1999, with letter of October 7, 1999 modifying Emergency Response Inventory Lists.

Environmental Documents/Reports

Guadalupe Oil Field Remediation and Abandonment Project Environmental Impact Report SCH# 96051053, certified by the County of San Luis Obispo in March 1998.

Addendum to the Guadalupe Oil Field Remediation and Abandonment Project Environmental Impact Report, September 30, 1999.

Executive Summary of 5X Beach and A2A North Ecological Risk Assessment, August 18, 1999.

Letter Report on Unocal's Santa Maria River Outlet Maintenance Plan, Hsieh Wen Shen, June 7, 1996.

Santa Maria River Migration at the Coast: Channel Migration Estimates and Channel Management Plan, Events Coastal, prepared for Unocal Corporation, September 20, 1995.

Review of the Santa Maria River Outlet Management Plan, prepared by Philip Williams & Associates, Ltd., June 13, 1996.

Review Comments on Santa Maria River Outlet Maintenance Plan, prepared by Simons, Li & Associates, Inc., June 5, 1996.

Letters

Letter from Barry Lajoie, County of San Luis Obispo Air Pollution Control District, to Alison Dettmer, Coastal Commission, October 4, 1999.

OTD Documents

Irrevocable Offer to Dedicate an Easement for Limited Public Access, Document Number 23796.

Irrevocable Offer to Dedicate an Easement for Habitat Protection and Open Space, Document Number 23795.